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FIFTH QUARTERLY DATA REPORT
FOR THE
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EXECUTIVE SUMMARY

Ecology Consultants, Incorporated has been contracted to perform a Terrestrial Baseline Data Accumulation Program for RBOSP on Tract C-a. Communication of the scope and results of that program will be accomplished in a series of quarterly reports. This fifth report of that series contains complete summarized results and definitive interpretations for major programs (vegetation, small mammals, avifauna, invertebrates) conducted throughout the year (October, 1974 through November, 1975). Quarterly results are summarized for each of these programs. Quarterly results and preliminary interpretations are presented for smaller programs carried out this quarter (large mammals, mammalian predators, etc.). Future quarterly reports will include an update of the developing data base for each subsequent quarter as well as any approved program modifications.

INTRODUCTION

This report presents and summarizes terrestrial baseline data gathered during the fifth quarter (September through November, 1975) on Oil Shale Tract C-a and its environs. In addition, annual results and interpretations of all vegetation, small mammal, avifauna and invertebrate data gathered from the beginning of the program in October, 1974 through November, 1975 are presented. A detailed description of new field methodology is included for all elements of the terrestrial program not included in the previous quarterly report. Only data gathered during the fall quarter are reported for large mammal, range studies, mammalian predator, grazing exclosure and threatened and endangered species. All raw data reported for the fall quarter are organized in appendices which appear as separate sub-sections under each of the major categories of investigation.

2.3 TERRESTRIAL STUDIES

2.3.1 Vegetation

2.3.1.1 Introduction - No changes have been implemented since Progress Report-4. See Section 2.3.1.1 in Progress Report-4 for the objectives of the vegetative study.

2.3.1.2 Methods -No changes have been implemented since Progress Report 4. See Section 2.3.1.2 in Progress Report-4 for methods used in the vegetation study.

2.3.1.3 Results

2.3.1.3.1 Data Organization and Content

2.3.1.3.1.1 Data Synthesis - Field data were summarized for October, 1974 and all 1975 sampling periods. October, 1974 data were presented separately because of changes in sampling methodology between 1974 and 1975 (conversion from 60 to 100 meter long transects). To maintain continuity of data presentation, only 1975 data are discussed in the results and discussion sections. Data were combined for the three 1975 sampling periods for the mature tree and shrub strata to present a regional average for each major vegetation type. The herbaceous stratum data for all sampling periods were presented separately to present major compositional and structural changes over the growing season for the major vegetation types.

The three predominant vegetation types on the study area--sagebrush, mixed brush, and pinyon juniper--were further divided into their major variants, or associations. All shrub and tree data collected during 1975 were synthesized to describe these associations. Herbaceous data for July only were presented to describe the herbaceous stratum at the height of its development for each association.

2.3.1.3.1.2 Sampling Coverage, Structural and Compositional Diversity - The extent of sampling in each vegetation type was summarized by presenting the number of permanent and non-permanent transects, total number of herbaceous quadrats sampled within a vegetation type, and the number of quadrats that were treated as permanent. Due to changes in the location of permanent transects established in 1974, all 1974 transects were treated as non-permanent. Changes in location were made to improve the distribution of sampling points. Total structural and compositional diversity were enumerated by presenting the number of strata (tree, shrub, herbaceous) present, and the number of species encountered in each stratum.

2.3.1.3.1.3 Table Organization - The tables are organized by vegetation type, life form categories (tree, shrub, herbaceous) within each type, and by sampling period. The appropriate association tables are organized by life form after each vegetation type. This system permits rapid comparisons among sampling periods, among the different strata within a type, and among plant associations.

The species order in the tables was determined by species cover values ranked from highest to lowest. If cover values were the same for two species, then their arrangement in the tables was determined by frequency values from highest to lowest. If cover and frequency values were the same, arrangement was determined by density values from highest to lowest. If the above three values

were the same, or if density values were not available, the arrangement was determined by alphabetical order.

A written synopsis of each vegetation type and association accompanies the tabular presentation. It directs attention to the more important structural and compositional concepts as they relate to the functional and descriptive characterization of each vegetation or association type. Included in this characterization are observations on elevation, degree of slope, slope aspect, soils and gradient relationships for each vegetation type or association analyzed.

2.3.1.3.1.4 Topographic Characteristics - The elevational range and average elevation for each vegetation type and association were summarized from the 1974 and 1975 transect data (Figure 2.3-1). Average slope inclination in degrees, and the percentage of transects occurring in each slope aspect quadrant were summarized for each type and association. Slope aspect quadrants were defined as follows: north = 315° - 44°; east = 45° - 134°; south = 135° - 224°; west = 225° - 314°.

2.3.1.3.1.5 Soils - The location of vegetation transects was correlated with a recent Soil Conservation Service soils map (1975) covering all of Tract C-a and the surrounding area within one mile of Tract C-a. Percentages of 1975 transects occurring on each identified soil series within the mapped area were summarized for each type.

2.3.1.3.1.6 Type Presentation - Parameters for the mature tree stratum presented in type tables and discussed in the results synopsis include: phenology of each species at each sampling period in each type (not recorded for gymnosperms), percent cover, percent frequency, constancy, cover in m^2 per hectare, density per hectare, basal area in m^2 per hectare, and size-class data for trees.

Parameters for the shrub-tree seedling stratum presented in type tables and discussed in the text include: phenology of each species at each sampling period in each type (not recorded for gymnosperms), percent cover, percent

frequency, constancy, cover in m^2 per hectare (not discussed directly because of derivation from percent cover), density in individuals per hectare, mean volume, and mean volume per hectare (volume measurements taken in May-June, 1975 on permanent transects).

Importance values, presented in previous reports, were deleted because the parameters from which importance values were derived (percent cover, percent frequency, and density) are expressed in full in the tables. The full presentation of these parameters permits an independent assessment of the relative influence of these parameters on species importance without the development of an importance value (Daubenmire, 1968).

Mean intercept values, presented in previous reports, were deleted because they do not necessarily reflect the size of an individual shrub since several individuals may contribute cover to a single intercept, and because mean intercept values give no indication of height. Individual shrub volume measurements provide a three dimensional concept of the shrub species encountered.

Other relationships discussed in the text include total species diversity, total cover and density, relative cover and density of dominant species, other common species over the type based on constancy values, phenology of dominants, enumeration of number of species observed in each phenological stage, and any anomalies or other major relationships apparent from the data.

Parameters for the herbaceous stratum presented in vegetation type tables and discussed in the text include: phenology of all species in each type, percent cover, percent frequency, constancy, cover in m^2 per hectare (not discussed directly because of derivation from percent cover), density of forb species in number of individuals per quadrat (.5 m^2), and sociability for forb species. Additional relationships discussed in the text include: total species diversity and total cover, relative cover of dominant species within the type, other common species in the type based on constancy values, degree of stability in species composition (expressed as the percentage of species found in common between two sampling periods), and enumeration of all species encountered in each phenological stage (one species may be included in several stages).

2.3.1.3.1.7 Association Presentation - A restricted number of parameters was discussed for the associations identified within the mixed brush, pinyon-juniper, and sagebrush vegetation types. Extent of sampling, total structural and compositional diversity, and summary of topographic characteristics were presented in the same format as was used to describe the major vegetation types. Comparisons of the elevational average and the average slope inclination were made between the association and the type.

Parameters discussed for the mature tree stratum include: percent cover, frequency, density per hectare, constancy, and basal area. The above values were compared to the averages for these parameters.

Shrub-tree seedling stratum parameters discussed include percent cover, frequency, and density per hectare. Other relationships discussed include: distinguishing structural and compositional criteria for the association; relative cover, density, and frequency of dominants; other common species based on frequency values; and comparison of all tabular values to vegetation type averages.

Herbaceous stratum parameters include percent cover, frequency, and density for forb species for the ten herbaceous species with the highest cover in the association, total number of species recorded for the association, and total cover for the association for that sampling period.

2.3.1.3.1.8 Ordination - The distribution of vegetation may be largely explained by the interaction of morphological and physiological characteristics of a plant species with abiotic factors (light, temperature, water, and soil) and biotic factors (competitive and pathological interactions with other members of the plant community and consumption by herbivores). These factors act to define a range of environmental conditions within which a plant species may expand its population, maintain a stable population, or die out.

Ordination of transects along elevational and topographic gradients is a method to determine whether there are apparent large scale patterns of plant structure and composition which may be best explained by certain combinations of abiotic factors (Whittaker, 1967).

For each transect in each of the types analyzed, data were assembled for elevation, degree of slope, slope aspect, total shrub cover and density, herbaceous cover (where applicable), total tree cover and density, and tree basal area. Total tree and shrub cover were plotted against elevation for all transects for each type.

Underlying assumptions about the relative effects of certain environmental factors, and of indices of plant response to these factors, are as follows:

- An increase in elevation is correlated with an increase in annual precipitation and cooler growing season temperatures, resulting in greater available moisture.
- South exposures are warmer, and evapo-transpiration rates are higher than on north exposures. In analysis of slope effects in the study area, north is defined as a range from 315° through north to 135°; south is defined as a range from 135° through south to 315°; when all aspects are considered, north = 315° - 45°, east = 45° - 134°, south = 135° - 224°, west = 225° - 314°.
- An increase in slope inclination toward the vertical results in a relative increase in the temperature and evapo-transpiration rate on south exposures. An increase in slope on north exposures is assumed to lower the temperature and reduce the evapo-transpiration rate. For the purposes of this study, slopes of less than 5° are assumed to have little effect on temperature and evapo-transpiration rates, and slopes in excess of 5° are assumed to have some effect on temperature and evapo-transpiration.
- No wind data were examined for the study area, but it appears that wind has a significant effect in increasing evapo-transpiration rates, particularly in the vicinity of the summit of Cathedral Bluffs.
- The effects of soil depth, texture, and chemical properties are considered as contributing factors to the distribution of plant communities.
- The percent cover for a given species or group of species is the best index for the relative success of a species or group of species on a given site, and is a measure of the influence of one species or a

group of species on other members of the plant community. The stratum (tree, shrub, herbaceous) is the basic unit of comparison in this analysis, although the effects of particular species are cited when appropriate. A secondary consideration is the effect of density as it relates to age and size. In general, it is assumed that for the shrub stratum an increase in cover is directly related to an increase in density. For the tree stratum, density is not considered a function of cover, since older trees may contribute a high percent cover, but occur at low densities.

2.3.1.3.2 Floristics - The flora identified in the study area during 1974-1975 includes 5 tree species, 36 shrub species, 168 forb species and 44 grass and/or grasslike species. A list has been compiled arranging all species in four life form categories (tree, shrub, herbaceous non-grasslike, and grass and grasslike). The species are listed in alphabetical order with the appropriate author citation, family, life form and common name (Table 2.3-1). Whether the species is introduced or native and whether a voucher specimen has been collected is also indicated.

One endangered species, Astragalus lutosus (Smithsonian Institution, 1975), one endemic species, Aquilegia barnebyi (Munz, 1949), and the Colorado state flower, Aquilegia caerulea (Harrington, 1964), occur in the study area. Eleven exotic forb species and 5 exotic grass species, introduced from outside the North American continent, were found in the study area.

The ecological amplitude of a species is the range of habitat variation that a species can endure. Table 2.3-2 illustrates the ecological amplitude (or range of adaptability) of species sampled within the study area. This range is indicated by presence or absence and cover of a species within each plant community sampled in the study area. The species are arranged by life form into tree, shrub and herbaceous categories in alphabetical order by the abbreviation shown in the species list. The percent cover of each species is listed for each type or association where the species occurred.

2.3.1.3.3 Data Presentation

2.3.1.3.3.1 Aspen - The aspen type aws sampled with two permanent and three non-permanent transects. Shrub and tree strata were measured on all transects. A total of sixty 0.5 m^2 quadrats were used to sample the herbaceous stratum. Twenty of these quadrats were sampled three times on the two permanent transects. Three strata and 55 species were identified for the aspen type: two species in the mature tree stratum, 14 species in the shrub stratum, and 41 species in the herbaceous stratum. Populus tremuloides and Pseudotsuga menziesii occurred in both the tree and shrub strata.

The aspen type was sampled over an elevational range of 8,140 feet to 8,560 feet, with an average elevation of 8,410 feet for the transects sampled (Figure 2.3-1). Seventy-eight percent of the transects occurred on north-facing slopes and 22% on east-facing slopes. The average degree of slope for all transects was 14°.

The aspen vegetation type is found on deep, loamy soils which are high in organic matter. No detailed soils information was available for this type within the study area.

The mature tree stratum (Table 2.3-3) contributed a total cover of 42%. It was dominated by Populus tremuloides with a cover of 41%, a basal area of 21 m^2 per hectare, and a density in individuals per hectare of 623. Pseudotsuga menziesii was only found in 8% of the tree and shrub quadrats for 1975.

Seventy-five percent of Populus tremuloides individuals occurred in the shrub-tree seedling class, 0-7.6 cm (Table 2.3-4). In the mature tree class the largest percentage of individuals was in the 7.6-24 cm size class and less than 1% was found in size classes above 40 cm.

Populus tremuloides was observed only in the vegetative state during all sampling periods.

Fourteen species provided 70% total cover, and a total density of 13,802 individuals per hectare for the shrub-tree seedling stratum (Table 2.3-5).

Amelanchier alnifolia, Amelanchier utahensis, and Prunus virginiana were the dominant species, contributing 64% relative cover, 23% relative density, and occurring at constancies of 100%. Other highly constant species were Rosa woodsii and Prunus virginiana. Mean shrub volume for Amelanchier alnifolia was 22 m^3; Prunus virginiana was estimated at 3 m^3. Phenology for the three dominant species in 1975 was identical: leafing out or vegetative in May-June, forming fruits in July, and existing in a vegetative state in September. Of the 11 species encountered in May-June, 9 were leafing out, and 9 were in a vegetative state. Of the 9 species encountered during July, 1 was in a vegetative state, 3 species were flowering, and 5 were forming fruits. Of the 9 species encountered in September, 9 were in a vegetative state, and 2 were disseminating seeds.

Fourteen species and one unknown contributed 4% total herbaceous stratum cover during May-June, 1975 (Table 2.3-7). A sedge, Carex geyeri, was the dominant species over the type, providing 73% relative cover, and occurring at a constancy of 100%. Of the 14 species identified, 13 species were in a vegetative state, and 1 was forming flowers.

Twenty-five species contributed 42% cover in the quadrats sampled during July. Dominance was shared by Viola rugalosa, Thermopsis montana, and Osmorhiza depauperata, together contributing a relative cover of 41%, and occurring at constancies of 50, 100, and 50%, respectively. Other highly constant species were Carex geyeri, Galium boreale and Solidago sp.. Maximum forb density was provided by Galium boreale, six individuals per 0.5 m^2. Forty percent of the species found in May-June were found again in July. Sociability values were high for several species indicating a clumped distribution of these species. Of the 25 species encountered in July, 20 were in a vegetative state, 5 were forming flowers, 5 were flowering, and 4 were forming seeds.

Twenty-two species contributed 26% cover in the quadrats sampled during September. Carex geyeri was the dominant species, contributing a relative cover of 25%, and occurring at a constancy of 100%. Other highly constant species were Thermopsis montana, Bromus marginatus, and Valeriana occidentalis. Eighty-six percent of the species found during September were also found in

July. Maximum forb density was contributed by Galium boreale, with 5.1 individuals per 0.5 m^2. Sociability values remained high, in concordance with the May-June results. Of the 22 species encountered during September, 16 were in a vegetative state, 7 were disseminating seeds, and 2 were emergent.

2.3.1.3.3.2 Douglas-Fir - The Douglas-fir type was sampled during 1974 and 1975 with two permanent and nine non-permanent transects. Shrub and tree strata were measured when present on all transects. A total of sixty 0.5 m^2 quadrat locations was used to sample the herbaceous stratum. Twenty of these quadrats were sampled three times on the two permanent transects. Three strata and 49 species were identified for the Douglas-fir type: 2 species in the mature tree stratum, 19 species in the shrub stratum, and 31 species in the herbaceous stratum. Pseudotsuga menziesii and Populus tremuloides occurred in both the tree and shrub strata.

The Douglas-fir type was sampled over an elevational range of 7,800 feet to 8,500 feet, with an average elevation of 8,330 feet for the transects sampled (Figure 2.3-1). Eighty-two percent of the transects occurred on north-facing slopes, 9% on east-facing slopes, and 9% on west-facing slopes. The average degree of slope for all transects was 14°.

No detailed descriptions for soils occurring under the Douglas-fir type on the study area were available. Field observations indicate that soils are shallow and occur on steep slopes.

In the mature tree stratum (Table 2.3-7) two species contributed a total cover of 54% in 1975, occurring at a density of 470 individuals per hectare. Pseudotsuga menziesii was the dominant species encountered during all sampling periods, providing 99% relative cover. A density of 467 individuals per hectare was estimated. Populus tremuloides was unimportant in this type, providing less than 1% cover, and 3 individuals per hectare. Total basal area for Pseudotsuga menziesii was 31 m^2 per hectare.

Diameters of Pseudotsuga menziesii individuals in the mature class ranged from 7.6 cm to 72 cm dbh, with 30% of the trees greater than 24 cm dbh (Table 2.3-4).

When mature and tree seedling-sapling strata were combined, 67% of all Douglas-fir individuals were classified as seedlings or saplings (less than 7.6 cm dbh), indicating substantial reproduction in the stands sampled, and also high seedling-sapling mortality.

In the shrub-tree seedling stratum (Table 2.3-8) , eighteen species provided 56% total cover, and total density of 12,227 individuals per hectare. Amelanchier utahensis and Symphoricarpos oreophilus shared dominance providing 42% relative cover, 46% relative density, and occurring at a constancy of 80 and 100%, respectively. Mean volumes for the dominant species were 468 m^3 for Amelanchier utahensis and less than 1 m^3 for Symphoricarpos oreophilus. Phenology of the dominants ranged from leafing out in May and June, flowering for Symphoricarpos oreophilus and fruit development for Amelanchier utahensis in July, and a return to a vegetative state in September for both species. Of the eight species encountered in May-June, six were leafing out and three were vegetative. Of the 11 species encountered in July, one was forming flowers, four were flowering, and six were forming seeds. Of the ten species encountered during September, ten were in a vegetative state and three were declining. Other common species included Prunus virginiana, Pseudotsuga menziesii, and Rosa woodsii.

In the herbaceous stratum (Table 2.3-9) , 9 species contributed 9% total cover in the May-June quadrats. The dominant species was a sedge, Carex geyeri, contributing a relative cover of 83%, and occurring at a constancy of 100. Another highly constant species was Mahonia repens. Of the nine species eight were in a vegetative state, and one was emerging from the soil.

During July, 23 species, consisting primarily of perennial forbs, contributed a total cover of 23%. The dominant species was Carex geyeri, with a relative cover of 46%, and constancy of 100%. Other highly constant (100%) species included Thalictrum fendleri, Galium boreale, and Achillea lanulosa. Seventy-eight percent of the species encountered in June were again encountered in July. Maximum density was provided by Thalictrum fendleri, three individuals per 0.5 m^2. Sociability values were high for Thalictrum fendleri, Solidago sp., and Chenopodium fremontii, indicating a clumped distribution was forming

flower buds for these species. Of the 23 species encountered, 16 were in a vegetative state, 2 were flowering, 2 were forming fruits, 1 was disseminating seeds, and 1 was declining.

During September, 18 species contributed a total cover of 15%. Carex geyeri was the dominant species, with a relative cover of 66%, and a constancy of 100%. Other species with a 100% constancy were the same as those sampled in July. Eighty-three percent of the species encountered in September were also found in July. Maximum forb density was provided by Thalictrum fendleri, 2.0 individuals per 0.5 m^2. Sociability values were low for all species, indicating a generally dispersed distribution. Of the 18 species encountered, 15 were in a vegetative state, and 3 were declining or dead.

2.3.1.3.3.3 Mixed Brush - The mixed brush type was sampled with five permanent and 25 non-permanent transects. Shrub and tree strata were measured on all transects when present. A total of 180 0.5 m^2 quadrat locations was used to sample the herbaceous stratum. Fifty of these quadrat locations were sampled three times on the five permanent transects. Three strata and 91 species were identified for the mixed brush type: one species in the mature tree stratum, 20 species in the shrub stratum, and 71 species in the herbaceous stratum. Pinus edulis occurred in both the tree and shrub strata.

The mixed brush type was sampled over an elevational range of 7,150 feet to 8,600 feet, with an average elevation of 8,093 feet for the transects sampled (Figure 2.3-1). Forty-three percent of the transects occurred on east-facing slopes, 23% on north-facing slopes, 17% on south-facing slopes, and 17% on west-facing slopes. The average degree of slope for all transects was 11°.

Of ten transects occurring within the mapped area, 60% occurred on the Rentsac soil series which are shallow, well-drained soils formed from sandstone. These soils occur on 5 to 50% slopes. Forty percent of the transects occurred on a combination of the Rentsac and Piceance soil series. The Piceance soil series consists of moderately deep, well-drained soils that formed from sandstone and modified windblown material. These soils are on upland slopes and ridges with 5 to 15% slopes.

In the mature tree stratum (Table 2.3-10), one species, Pinus edulis, provided 0.1% cover, a basal area of 0.03 m^2 per hectare, and occurred at a density of two individuals per hectare. Pinus edulis occurred at a constancy of 8%.

In the shrub-tree seedling stratum (Table 2.3-11), 20 species provided 58% cover, and occurred at a density of 13,116 individuals per hectare. Amelanchier utahensis was the dominant species providing a relative cover of 52%, and occurring at a density of 2,902 per hectare. Mean volume for Amelanchier utahensis was 236 m^3, representing large patches of this species. Phenology for the dominant species (Amelanchier utahensis) ranged from vegetative to full bloom during May-June, ripening fruit during July, declining to a vegetative state in September. Of the 11 species sampled in May-June, all 11 were found in an emergent or vegetative state, 3 species were forming buds, and 1 was in bloom. Of the 12 species sampled during July, 2 were vegetative, 5 were forming flower buds or flowering, and 6 were developing fruits or seeds. Of the 10 species sampled in September, 6 were in a vegetative state, 2 were forming seeds, and 3 were disseminating seeds.

Highest constancy (100%) was shared by Amelanchier utahensis and Symphoricarpos oreophilus in 1975. Other common associates include Chrysothamnus viscidiflorus and Artemisia tridentata.

In the herbaceous stratum (Table 2.3-12), 44 species contributed 5% cover during May-June. Carex geyeri was the dominant species, providing relative cover of 40%, and occurring at a constancy of 60%. Other highly constant species were Oryzopsis hymenoides, Penstemon caespitosus, and Agropyron trachycaulum. The dominant species, Carex geyeri, was found in both a vegetative and a flowering condition. Of the 44 species encountered during this sampling period, 35 were in a vegetative condition, and 16 were forming flower buds, or were flowering.

Forty-six species contributed 11% total cover during July. A sedge, Carex geyeri, a perennial forb, Eriogonum umbellatum, and a grass, Oryzopsis hymenoides, shared dominance, providing a relative cover of 40%. These species occurred at constancies of 40, 60, and 80%, respectively. Another highly constant species was Cryptantha sericea. Seventy-six percent of the

species found during May-June were found again in July. Maximum density was provided by Eriogonum umbellatum, 1.3 individuals per 0.5 m^2. Sociability values were low for all forb species, reflecting the low density and low frequency of individuals of this group. Of the 46 species recorded for July, 29 were in a vegetative state, 6 were flowering, 7 were forming seeds, 14 were disseminating seeds, and 8 were declining.

During September, 34 species contributed 8% cover. The sedge Carex geyeri was again the dominant species, providing a relative cover of 35%, and occurring at a constancy of 60%. Eighty-two percent of the species found in September were also found during July. Senecio canus contributed maximum forb density, 1.1 individuals per 0.5 m^2. Sociability values were low for all forb species, indicating a dispersed distribution. Of the 34 species encountered in September, 23 were in a vegetative state, 2 were forming flower buds or flowering, 5 declining, and 7 dead or dormant.

2.3.1.3.3.3.1 Associations - The mixed brush type is represented by two major variants or associations on the study area, the Utah serviceberry (Amelanchier utahensis)-Gambel oak (Quercus gambelii)-snowberry (Symphoricarpos oreophilus)-elk sedge (Carex geyeri) mixed brush association, and the Utah serviceberry (Amelanchier utahensis)-snowberry (Symphoricarpos oreophilus) mixed brush association. Transects sampled for the mixed brush type were divided into these two associations on the basis of structural and compositional criteria. Tree and shrub strata data were synthesized for the two associations. Herbaceous data for July were presented to define the maximum herbaceous development for the season.

Utah serviceberry (Amelanchier utahensis)-Gambel oak (Quercus gambelii) association is represented by seven transects. The herbaceous stratum was measured with seventy 0.5 m^2 quadrat locations, of which 20 were sampled three times during 1975. Two strata and 36 species were identified in Utah serviceberry-Gambel oak association: 13 species in the shrub stratum, and 23 species in the herbaceous stratum (includes the July sampling period only).

The Utah serviceberry-Gambel oak association occupied an elevational range of 7,150 feet to 8,500 feet, with an average elevation of 8,080 feet for the

transects sampled (Figure 2.3-1). Seventy-two percent of the transects occurred on east-facing slopes, 14% on north-facing slopes, and 14% on south-facing slopes. Average slope inclination for all transects was 18°. The elevational average for this association is nearly the same as the type average (8080 vs. 8090 feet), but the association occurs on steeper slopes than the type average (18° vs. 11°).

Transects sampled in this association occurred primarily on Rentsac soils. No mature trees were sampled in this association. Young aspen trees appeared in the shrub stratum on some transects, indicating a continuity of this association with the shrub understory of the aspen type on the study area.

The major characteristics of this association are the high (80%) cover and density (15,473 individuals per hectare) of the shrub stratum (Table 2.3-13). The three dominant species, Amelanchier utahensis, Symphoricarpos oreophilus, and Quercus gambelii, together provided a relative cover of 80% and relative density of 56%. Cover values for this association are higher than those for the type as a whole (80% for the association vs. 40-60% for the mixed brush vegetation type), and density values are generally higher or equal to the type as a whole (15,473 vs. 13,116 and 16,829 per hectare). The presence of species common in wetter aspen and douglas-fir types (Prunus virginiana, Rosa woodsii, Ribes inerme) and also in the drier sagebrush-mixed brush types (Artemisia tridentata, Chrysothamnus viscidiflorus, Tetradymia canescens) indicates the strongly transitional nature of this association.

During the July 1975 sampling period, 23 species contributed 26% total herbaceous stratum cover (Table 2.3-14). The dominant species was a sedge, Carex geyeri, which provided a relative cover of 24%. The dominance of this species is consistent with its overall dominance within the type. Carex geyeri is strongly associated with vegetation communities with high deciduous shrub and tree cover, and with higher altitude (7,500-8,500 ft) coniferous forest (Table 2.3-2) in the study area. Comandra umbellata had the highest density, 2.8 individuals per .5 m^2.

The serviceberry (Amelanchier utahensis)-snowberry (Symphoricarpos oreophilus) association is represented by 23 transects of which 11 were summarized for 1975.

The herbaceous stratum was measured with a total of 150 quadrat locations, of which 30 were sampled 3 times during 1975. Three strata and 44 species were identified for this association: 1 species in the tree stratum, 15 species in the shrub stratum, and 29 species in the herbaceous stratum. Pinus edulis occurred in both the tree and the shrub strata.

The Utah serviceberry-snowberry association occupied an elevational range of 7,140 ft to 8,480 ft, with an average elevation of 7,760 ft. Forty-five percent of all transects were on north-facing slopes, 23% on east slopes, 18% on south slopes, and 14% on west slopes. Average slope inclination was 9°. The elevational average for this association is lower than the average for the mixed brush type as a whole. This association also occurs on more gentle slopes than is average for the type (9° vs. 11°). This association occurred primarily on cooler (north and east) slope exposures, but was found more frequently on warmer (south) exposures than the Utah serviceberry-Gambel oak association. Transects sampled in this association occurred primarily on Rentsac and Rentsac-Piceance soils.

Pinus edulis was the only species encountered in the mature tree stratum, providing .16% cover and occurring at a density of 3 individuals per hectare (Table 2.3-15). The presence of Pinus edulis in this association indicates a continuity of this association with the pinyon-juniper type, where many of the same shrub species encountered in this association were also encountered in the understory of the pinyon-juniper type (Table 2.3-2).

In the shrub-tree seedling stratum (Table 2.3-13) the primary distinguishing characteristics are the high cover and density of two shrub species, Amelanchier utahensis and Symphoricarpos oreophilus (relative cover of 77%, relative density of 53%), with secondary dominance by Artemisia tridentata. Total cover for this association, 49%, is within the range of the type as a whole, but density is slightly less (12,204 vs. 13,116 individuals per hectare). Chrysothamnus viscidiflorus is a highly frequent constituent of this association. The high importance of Artemisia tridentata, and the presence of Juniperus osteosperma and Pinus edulis indicate the close relationship between the Utah serviceberry and snowberry association with the sagebrush and pinyon-juniper types.

In the herbaceous stratum (Table 2.3-14), during the July sampling period, 29 species contributed 11% total cover. The dominant species were two grasses, Stipa comata, Poa sandbergii, and a forb, Eriogonum umbellatum. These species contributed a relative cover of 43%. The dominant grass species reflect a drier environmental situation, since both assume greatest importance in the sagebrush and pinyon-juniper types (Table 2.3-2). Average forb density per .5 m^2 for the ten species with the greatest cover was 12.7 plants. Eriogonum umbellatum contributed the greatest density, 4 plants per .5 m^2.

The mixed brush vegetation type showed a correlation of an increase in cover with increasing elevation and a response to differences in slope and aspect (Figure 2.3-2). All transects sampled below 7,300 ft occurred on steep north or east exposures. The serviceberry-Gambel oak association occurred above the majority of the serviceberry-snowberry transects, primarily on steep north and east-facing slopes. The serviceberry-snowberry association shrub stratum showed a much wider variability in cover than did the serviceberry-Gambel oak association, indicating that a number of biotic and abiotic factors which are not identified here are contributing to the relative success of this association.

2.3.1.3.3.4 Pinyon-Juniper - The pinyon-juniper type was sampled with 7 permanent and 44 non-permanent transects. Shrub and tree strata were measured, when present, on all transects. A total of 330 0.5 m^2 quadrat locations was used to sample the herbaceous stratum. Seventy of these quadrats were sampled 3 times on the 7 permanent transects. Three strata and 85 species were identified for the pinyon-juniper type: 2 species in the mature tree stratum, 19 species in the shrub stratum, and 6 species in the herbaceous layer. Juniperus osteosperma and Pinus edulis occurred in both the tree and shrub strata.

The pinyon-juniper type was sampled over an elevational range of 6,500 ft to 7,660 ft, with an average elevation of 6,940 ft for the transects sampled (Table 2.3-4). Thirty-nine percent of the transects occurred on east-facing slopes, 23% on south slopes, 22% on north slopes, and 16% on west slopes. The average degree of slope for all transects was 7°.

Of the 24 transects occurring within the mapped area, 75% were sampled on the Rentsac soil series. These soils are shallow, well-drained, and are formed from sandstone. They occur on 5 to 50% slopes. Thirteen percent of the transects occurred on rock outcrops or Torriorthents. The slopes range from 12 to 90%, and are mainly south-facing along many of the drainages. These shallow soils are derived from sandstone cliffs or platy siltstone outcroppings. Eight percent of the transects occurred on a combination of Rentsac and Redcreek soil series. Redcreek soils differ from Rentsac soils in that they are derived from calcareous sandstone and have slopes of only 5 to 30%. Four percent of the transects occurred on the Rentsac, Piceance soil association. The Piceance series consists of moderately deep, well-drained soils formed from sandstone and windblown materials. These soils are on upland slopes and ridges with slopes of 5 to 15%.

In the mature tree stratum (Table 2.3-16) two species contributed 21% cover, a density of 254 individuals per hectare, and a basal area of 37 m^2 per hectare. Pinus edulis and Juniperus osteosperma shared dominance for both sampling periods. Pinus edulis contributed slightly higher cover than Juniperus osteosperma, but Juniperus osteosperma occurred at a higher relative density (56%) and contributed greater relative basal area (61%). Juniperus osteosperma constancy was equal to the constancy (88%) of Pinus edulis.

Diameters of Juniperus osteosperma individuals in the mature class (greater than 7.6 cm) ranged in size from 7.6 cm to 103 cm, measured below branch point (Table 2.3-4). The largest percentage of mature class trees (50%) were found in the 7.6-16, 16-24, and 40-48 cm size classes. When the mature and seedling-sapling classes were combined, the largest number of individuals were found in 0-7.6 cm size class, or 29% of all individuals sampled.

Diameters of Pinus edulis individuals in the mature class ranged in size from 7.6 to 80 cm measured below branch point (Table 2.3-4). The largest percentage (60%) of mature class trees were found in the 7.6-24 cm size class. When mature and shrub seedling classes are combined, 75% of all trees sampled occurred in the 0-7.6 cm size class.

In the shrub-tree seedling stratum (Table 2.3-17), 17 species provided 11% total cover, and a total density of 3,745 individuals per hectare. Artemisia tridentata was the dominant species in all transects, providing a relative cover of 44%, relative density of 45%, and occurring at a constancy of 100%. Other species with high constancy were Pinus edulis and Amelanchier utahensis. Mean volume for the dominant species Artemisia tridentata was 0.08 m^3. The largest species, Amelanchier utahensis, was estimated at 0.40 m^3. Phenology for the dominant species, Artemisia tridentata, ranged from vegetative and flower formation stages in May-June, flower formation in July, and flowering and seed formation in September. Of the 13 species sampled in May-June, 13 were in a vegetative state, 4 were forming flowers, 1 was blooming, and 1 was forming seeds. Of the 11 species sampled on the July transects, 3 were in a vegetative state, 3 were blooming and 5 were forming fruits. Of the 16 species sampled on the September transects, 8 were in a vegetative state, 4 were blooming, 6 were forming seeds, and 4 were declining.

In the herbaceous stratum (Table 2.3-18) 42 species and 2 unknowns contributed 2.9% total cover on the transects sampled during May-June 1975. The dominant species were three grasses, Agropyron trachycaulum, Oryzopsis hymenoides, and Poa sandbergii, together providing a relative cover of 46%. The three dominants occurred at constancies of 100, 71, and 57%, respectively. Other species with high constancies were Phlox hoodii and Haplopappus nuttallii. Of the 42 species identified during May-June, 39 were in a vegetative state, 9 were forming flowers, 3 were blooming, and 1 was forming seeds.

Thirty-nine species contributed 6% total cover during July. Three grass species, Agropyron trachycaulum, Oryzopsis hymenoides, and Poa sandbergii again shared dominance, providing a relative cover of 38%. A highly constant species not previously recorded in the pinyon-juniper type was Cryptantha sericea. Seventy-three percent of the species found in June were found again during the July sampling period. Maximum forb density was contributed by Cryptantha sericea and Sphaeralcea coccinea, both occurring at 1.3 individuals per 0.5 m^2. Generally, low sociability values for forb species indicate a dispersed and unaggregated distribution of this group. Of the 39 species encountered during July, 32 species were in a vegetative state, 2 were forming

flowers, 5 were blooming, 3 were forming seeds, 6 were dispersing seeds, and 2 were declining.

Thirty-two species contributed 4% cover in the quadrats sampled during September. Dominant species were Agropyron trachycaulum and Poa sandbergii, together providing a relative cover of 38%. Eighty-eight percent of the species found in September were also found in July. Maximum forb density was contributed by Phlox hoodii, 0.7 individuals per 0.5 m^2.

Sociability values were low for all species except Sphaeralcea coccinea, which showed a clumped distribution. Of the 32 species encountered during September, 24 were in a vegetative state, 1 was forming seeds, 2 were dispersing seeds, 3 were declining, and 4 were dead or dormant.

2.3.1.3.3.4.1 Association - The pinyon-juniper type is represented by three major variants or associations on the study area: the pinyon pine (Pinus edulis) and Utah juniper (Juniperus osteosperma) - mixed brush association; the pinyon pine (Pinus edulis) and Utah juniper (Juniperus osteosperma) woodland (sparse shrub understory) association; and the Utah juniper (Juniperus osteosperma)-pinyon pine (Pinus edulis)-big sagebrush (Artemisia tridentata) association. Transects sampled for the pinyon-juniper type were divided into these three associations on the basis of structural and compositional criteria. Tree and shrub data were synthesized for the three associations. Herbaceous data for July 1975 were presented to define the maximum herbaceous development for the season.

The pinyon pine (Pinus edulis)-Utah juniper (Juniperus osteosperma) - mixed brush association was sampled with 12 transects, of which 8 were summarized for 1975. The herbaceous stratum was measured with a total of 120 quadrat locations, of which 20 were sampled three times. Three strata and 36 species were identified in the pinyon-juniper-mixed brush association: 2 species in the tree stratum, 15 species in the shrub stratum, and 21 species in the herbaceous stratum. Pinus edulis and Juniperus osteosperma occurred in both the tree and the shrub strata.

The pinyon-juniper-mixed brush association occupied an elevational range of 6,620 to 7,660 ft with an average elevation of 7,140 ft (Figure 2.3-1). Sixty-six percent of the transects occurred on east-facing slopes, 17% on south slopes, and 17% on north slopes. Average slope inclination for all transects was 11°. The elevational average for this association is higher than the type average (7,140 vs. 6,939 ft), and occurs on steeper slopes than the type average (11° vs. 7°). This association was sampled primarily on cooler (north and east) slope aspects. This association occurred primarily on Rentsac soils.

In the mature tree stratum (Table 2.3-19) two tree species contributed a total cover of 15%, density of 173 individuals per hectare, and provided a total basal area of 23 m^2 per hectare.

In the shrub-tree seedling stratum (Table 2.3-20) the primary criteria for distinguishing this association are:

- The occurrence of a shrub stratum with greater than 10% cover;
- of this shrub cover, Artemisia tridentata cannot contribute more than 50% of the total cover;
- shrub species are characteristically members ofthe mixed brush type (Amelanchier utahensis, Cercocarpus montanus, Purshia tridentata), but composition is not limited to these species.

Fifteen species contributed a total cover of 20%, and total density of 5,867 individuals per hectare. Of the transects sampled for this association, Amelanchier utahensis and Artemisia tridentata were dominant species, providing a relative cover of 72%, a relative density of 60%, and occurring at frequencies of 93% and 98%, respectively. Other species occurring at frequencies greater than 50% were Pinus edulis, Juniperus osteosperma, Chrysothamnus viscidiflorus, Purshia tridentata, and Symphoricarpos oreophilus. The high frequenctis of both Pinus edulis and Juniperus ostesperma indicate substantial reproduction of these species in these stands. Total cover and total density for this association are much higher than the type average (20 vs 11% cover, 5,867 vs 3,745 individuals per hectare).

In the herbaceous stratum (Table 2.3-21) 21 species contributed a total cover of 4% in quadrats sampled in July for this association. Agropyron trachycaulum was the dominant species, providing a relative cover of 32%. Nearly all herbaceous species occurred at low densities; no species exceeded a frequency greater than 35%. Astragalus diversifolius contributed the maximum density, 5.2 individuals per .5 m^2.

The pinyon pine (Pinus edulis)-Utah juniper (Juniperus osteosperma)- big sagebrush (Artemesia tridentata) association is represented by 14 transects, of which 8 were summarized for 1975. The herbaceous stratum was measured with a total of 90 quadrat locations, of which 30 were sampled three times. Three strata and 40 species were identified in the pinyon-juniper-big sagebrush association: 2 species in the tree stratum, 14 species in the shrub stratum, and 26 species in the herbaceous stratum (July sampling period only). Pinus edulis and Juniperus osteosperma occurred in both the tree and the shrub strata.

The pinyon-juniper-big sagebrush association occupied an elevational range of 1,982 m (6,500 ft) to 2,268 m (7,440 ft) with an average elevation of 2,018 m (6,620 ft) (Figure 2.3-1). Thirty-six percent of the transects occurred on east-facing slopes, 36% on south slopes, 14% on north slopes, and 14% on west slopes. Average slope inclination for all transects was 4^o. The elevational average for this association is lower than the type average 2,018 m (6,620 ft) vs 2,115 m (6,939 ft)), and occurs on gentler slopes than the type average (4^o vs 7^o). This association was found predominantly on south and east aspects, but does not appear to be strongly influenced by slope aspect because of gentle slope inclinations.

Transects sampled in this association occurred primarily on the Rentsac soil series.

In the mature tree stratum (Table 2.3-19), two tree species contributed a total cover of 21%, a total density of 300 individuals per hectare, and a total basal area of 25 m^2 per hectare. Juniperus osteosperma was the dominant species

with relative cover of 55%, and a relative density of 60%. This species also occurred at the highest constancy. The totals summarized above are very similar to the type averages for these parameters.

In the shrub-tree seedling stratum the primary criteria for distinguishing this association are:

- the occurrence of shrub stratum with 6% or greater cover;
- strong dominance of the shrub stratum by Artemisia tridentata (greater than 50% of the total cover);
- the occurrence of other species commonly associated with Artemesia tridentata (Chrysothamnus viscidiflorus and Purshia tridentata).

Fourteen species contributed a total cover of 9%, and a density of 4,788 individuals per hectare. The dominant species was Artemisia tridentata with a relative cover of 79%, and relative density of 53%. Other species occurring at high frequencies included Chrysothamnus viscidiflorus, Pinus edulis and Juniperus osteosperma. Densities of both Pinus edulis and Juniperus osteosperma are higher than in the juniper-pinyon-mixed brush association, indicating greater reproduction in stands dominated by sagebrush. Total cover and total density for this association are similar to the type averages for these parameters.

In the herbaceous stratum (Table 2.3-21), 26 species contributed a total cover of 8% for the July sampling period. Agropyron trachycaulum was the dominant species, with a relative cover of 15%. Of the 10 species with the greatest cover, no species occurred at a frequency greater than 53%. Cryptantha sericea contributed the greatest forb density, 2.9 individuals per .5 m^2. Total cover was higher than the type average for July (8 vs 6%).

The pinyon pine (Pinus edulis)-Utah juniper (Juniperus osteosperma) woodland association is represented by 25 transects, of which 9 were summarized for 1975. The herbaceous stratum was measured with a total of 180 quadrat locations, of

which 20 were sampled 3 times during 1975. Three strata and 39 species were identified in the pinyon-juniper woodland association: 2 species in the tree stratum, 15 species in the shrub stratum, and 25 species in the herbaceous stratum (July sampling period only).

The pinyon-juniper woodland association occupied an elevational range of 1,993 m (6,540 ft) to 2,556 m (7,400 ft), with an average elevation of 2,103 m (6,900 ft) (Figure 2.3-1). Twenty-eight percent of the transects occurred on north-facing slopes, 24% on east-facing slopes, 24% on south slopes, and 24% on west slopes. Average slope inclination for all transects was 7^{o}. The elevational average for this association is nearly the same as the type average (2,103 m (6,900 ft) vs 2,115 m (6,939 ft)), and degree of slope is the same as the type. This association did not show a strong tendency to occur on particular slope aspects.

Transects sampled in this association occurred primarily on Rentsac soils and on rock outcrops.

In the mature tree stratum (Table 2.3-19), two tree species contributed a total cover of 27%, total density of 283 individuals per hectare, and provided a total basal area of 60 m^2 per hectare. Pinus edulis contributed the highest relative basal area; Juniperus osteosperma occurred at the highest relative density. The total values above are similar to the type average for cover and density, but are much higher for total basal area (60 vs 37-39 m^2 per hectare), indicating the presence of a number of large trees.

In the shrub-tree seedling stratum (Table 2.3-20), the primary criterion for distinguishing this association is the occurrence of a shrub stratum with less than 6% cover.

Fifteen species contributed a total cover of 3% and a density of 1,427 individuals per hectare. Purshia tridentata was the dominant species, with a relative cover of 28%, and a relative density of 23%. Other species occurring at high frequencies and densities were Artemisia tridentata, Pinus edulis, and Cercocarpus montanus. Densities of Pinus edulis and Juniperus osteosperma were lower than

the density of these species in the pinyon-juniper-big sagebrush association, indicating possible inhibition of establishment by the generally larger trees in this association. Total cover and total density values are lower for shrubs than for the type as a whole.

In the herbaceous stratum (Table 2.3-21), 24 species contributed a total cover of 4%. Poa sandbergii was the dominant species, providing relative cover of 28%. Another species occurring at relatively high frequencies was Agropyron trachycaulum. Maximum forb density was provided by Cryptantha sericea, 3.8 individuals per 0.5 m^2. Total cover and species diversity were similar to the type average for July.

The pinyon-juniper type occupied greater diversity of topographically different sites than any other type sampled. In general, pinyon-juniper stands occurred in the following types of sites:

- Along gently sloping ridges generally inclined to the east (84 Mesa, Wolf Ridge, Dead Horse Ridge). Soils range from shallow to deep.
- On steep north-facing and south-facing slopes above the gulches dissecting the study area. Soils range from extremely shallow to rocky outcrops. Based on the variability of these factors, transects were divided into groups according to degree of slope and aspect, and into the major associations based on structural and compositional criteria.

Figures 2.3-3 and 2.3-4 illustrate changes in cover and density for shrub and tree strata for the pinyon-juniper type in relation to elevation. Average cover and density values for both strata were calculated for each 500 ft interval of the range of this type in the study area. Also plotted were average cover and density for transects occurring on north slope aspects (defined as 315-90^o) and south aspects (defined as 91-314^o), and the occurrence of these transects on relatively level slopes (less than 5^o slopes), or on steeper terrain (greater than 5^o slopes). Although variance was high for all data, the general pattern indicated that shrub cover was relatively uniform (approximately 7.5-13%) with an increase in elevation, although showing very high variance

in the 2,134 m (7,000 ft) to 2,210 m (7,250 ft) range. Shrub density ranged around 4,500 individuals per hectare at the lower elevations (1,981 m (6,500 ft) to 2,057 m (6,750 ft)), but then dropped sharply in the 2,057 m (6,750 ft) to 2,210 (7,250 ft) range to 2,500 to 3,000 individuals per hectare and increased to more than 5,000 individuals per hectare in transects above 2,210 m (7,500 ft). Tree cover increased from approximately 20% between 1,981 m (6,500 ft) and 2,057 m (6,750 ft) to nearly 30% between 2,134 m(7,000 ft) and2,210 m (7,250 ft) then dropped sharply to less than 23% above 2,210 m (7,250 ft). No strong correlations between cover and density for shrubs and trees with slope and aspect were apparent from the data. The pattern of these data was similar to results obtained by West, et al. (1975) in an ordination of pinyon-juniper transects in the Great Basin and Colorado Plateau. They found that a maximum tree cover for pinyon and juniper occurred 2,200 m (approximately 7,200 ft). A nearly identical result was obtained in this study, with maximum average tree cover for transects sampled occurring at approximately 2,195 m (7,200 ft). West, et al. (1975) found that shrub stratum cover dropped to less than 1% at the point of maximum tree cover. Shrub cover did not show a corresponding drop at the point of maximim tree cover in the study area, remaining above 5%. Density data for the study area indicated that a large drop in density for shrub occurred at the point of maximum tree cover, implying that shrub cover may have largely been provided by large, widely spaced shrubs.

Changes in cover with elevation in relation to structure and composition of associations identified in the study area are discussed below. Figures 2.3-5, 2.3-6 , and 2.3-7 present shrub and tree cover of individuals transects, with the addition of slope inclination and aspect information. Ordination by structural and compositional criteria against elevation explained some of the variability in the data which was not apparent from the ordination of the type as a whole.

The pinyon-juniper woodland (sparse understory) association (Figure 2.3-5), show a very wide elevational occurrence, with a maximum number of transects occurring between 2,104 m (6,800 ft) and 2,210 (7,250 ft). The juniper-pinyon-woodland association shows the highest average tree cover of any

association, and the lowest shrub cover, indicating a strong influence on the understory by larger pinyon and juniper trees. Cover is not strongly correlated with increase in basal area, nor is it strongly correlated with an increase in density.

The pinyon-juniper-mixed brush association (Figure 2.3-6) shows a very wide elevational distribution, but the majority of transects sampled occurred above 2,134 m (7,000 ft). Those occurring below 2,195 m (7,200 ft) appear to be influenced by slope aspect and slope inclination: all transects occurred on steeper (greater than 5^{o} slopes), and cooler (north and east exposures) slopes. In general, the occurrence of high shrub cover is correlated with low tree cover, indicating either disturbed sites, or areas transitional toward mixed brush stands.

There appears to be some correlation between the occurrence of the pinyon-juniper-big sagebrush association (Figure 2.3-7) with elevation, with most transects sampled occurring below 2,066 (6,775 ft). A few transects with understories dominated by sagebrush were encountered above 2,256 m (7,400 ft), indicating intergradation with upland sagebrush stands at the upper limits of pinyon-juniper distribution.

West, et al. (1975) also found that cover values for sagebrush increased at the upper limits of the pinyon-juniper type in transects sampled in the Great Basin and Colorado Plateau.

2.3.1.3.3.5 Sagebrush - The sagebrush type was sampled with 7 permanent and 41 non-permanent transects. Shrub and tree strata when present were measured on all transects. A total of 300, 0.5 m^2 quadrat locations was used to sample the herbaceous stratum. Seventy of these quadrats were sampled three times on the seven permanent transects. Three strata and 117 species were identified for the sagebrush typ: 2 species in the mature tree stratum, 17 species in the shrub stratum, and 100 species in the herbaceous layer. Pinus edulis and Juniperus osteosperma occurred in both the tree and shrub strata.

The sagebrush type was sampled over an elevational range of 1,957 m (6,420 ft) to 2,616 m (8,580 ft) with an average elevation of 2,165 m (7,100 ft) for the transects sampled (Figure 2.3-1). Thirty-three percent of the transects occurred on north-facing slopes, 30% occurred on east-facing slopes, 17% occurred on south slopes, and 20% occurred on west slopes. The average degree of slope for all transects was 4^{o}.

Thirty-five percent of the 23 transects sampled within the mapped area occurred on the Glendive soil series. These are deep, well-drained valley soils formed in alluvial material with slopes of 2 to 9%. Thirty percent of the transects occurred in Rentsac soils. These are shallow, well-drained, sandstone-derived soils on foothills with slopes of 5 to 50%. Twenty-six percent of the transects occurred on a combination of Rentsac and Piceance soils. The Piceance soils are moderately deep,well-drained upland soils derived from sandstone and windblown materials on ridges and slopes of 5 to 15%. Four percent of the transects occurred on rocky outcrops and Torriorthent soils. These shallow soils are derived from sandstone cliffs or platy silstone outcrops on south-facing slopes of many drainages. These slopes are usually steep, ranging from 12 to 90%.

Mature trees of Pinus edulis and Juniperus osteosperma contributed zero total cover, a total density of two individuals per hectare, and a total basal area of 0.27 m^2 per hectare. Juniperus osteosperma occurred at a slightly higher constancy than Pinus edulis (8 vs. 4) (Table 2.3-22).

In the shrub stratum (Table 2.3-23), 17 species provided 34% total cover and total density of 13,925 individuals per hectare. Artemisia tridentata was the dominant species contributing 73% r ative cover, and relative density of 59%. Artemisia tridentata occurred at a constancy of 100%. Other species with a high constancy were Chrysothamnus viscidiflorus and Amelanchier utahensis. Mean volume for Artemesia tridentata was 0.20 m^3; the largest species, Amelanchier utahenesis, was estimated at 2.17 m^3. Phenology for the dominant species, Artemisia tridentata, ranged from vegetative in May-June, flower formation during July, and flowering, seed formation, and dissemination during September. Of the 14 species sampled in May-June, 13 were in a vegetative state, 2 were leafing out, and 2 were dormant. Of the 10 species

sampled in July, 5 were in a vegetative state, 3 were forming flowers, 1 was flowering, and 2 were forming seeds or fruits. Of the 14 species sampled in September, 10 were in a vegetative state, 4 were flowering, 4 were forming seeds, 6 were disseminating seeds, and 3 species were declining.

In the herbaceous stratum, 62 species contributed 7% total cover during May-June. The dominant species were a grass, Poa sp., and a perennial forb, Phlox hoodii. Together these two species contributed relative cover of 33%, and occurred at constancies of 86 and 14%, respectively. Other species showing relatively high cosntancies were Agropyron sp. and Sisymbrium sp. Of 62 species identified during May-June, 2 were emerging from the soil, 53 were in a vegetative state, 17 were forming flowers, 5 were flowering and 1 was forming seeds.

During July, 60 species contributed 17% cover. Dominant species were two grasses, Poa sandbergii and Agropyron smithii, and a forb, Lupinus caudatus. The three species together contributed a relative cover of 34%, and occurred at constancies of 43, 86, and 43% respectively. Other species with high constancies were Phlox longifolia, Cryptahntha sericea, and Chenopodium fremontii. Sixty-one percent of the species found in the June quadrats were again encountered in July. Galium boreale contributed maximum forb density, 2.9 individuals per 0.5 m^2. Generally low sociability values for all species except Galium boreale and Erigeron speciosus indicate a generally dispersed, and non-aggregated distirubtion pattern for herbaceous forbs. Of the 60 species encountered during July, 32 were in a vegetative state, 12 were forming flowers, 16 were flowering, 16 were forming seeds, 12 were dispersing seeds, and 6 were declining.

Forty-three species contributed a total cover of 14% during September. Dominant species over the type were Poa sandbergii, Koeleria gracilis, and Lupinus caudatus, together providing 21% relative cover, and occurring at a constancy of 50% for all three species. Other highly constant species were Oryzopsis hymenoides, and a species of moss. Seventy-nine percent of the species found in September were also found in the July transects. Galium boreale contributed maximum forb density, 2.6 individuals per 0.5 m^2.

Sociability values were low for all species except Galium boreale and Lepidium montanum, which grew in clumps. Of the 43 species encountered during September, 30 were in a vegetative state, 5 were dispersing seeds, 9 were declining, and 6 were dormant or dead.

2.3.1.3.3.5.1 Associations - The sagebrush type is represented by four major variants or associations on the study area: the bottomland big sagebrush association, the upland big sagebrush association, the rabbitbrush association, and the greasewood association.

Transects sampled for the sagebrush type were divided into these four associations on the basis of structural, compositional, topographic and successional criteria. Tree and shrub data were synthesized for the upland and bottomland sagebrush associations. Herbaceous data for July were presented to define the maximum herbaceous development for the season for these two associations. The rabbitbrush and greasewood associations, because of their treatment as types in the past, were treated separately as types in the sections that follow. The relationships between these associations, and the sagebrush type, are discussed under separate sections.

The bottomland big sagebrush association is represented by 17 transects, of which 9 are summarized. The herbaceous stratum was measured with a total of 110 quadrat locations, of which 30 were sampled 3 times. Two strata and 33 species were identified for the bottomland big sagebrush association: 12 shrub species, and 21 herbaceous species (July sampling period only).

The bottomland big sagebrush association occupied an elevational range of 1,957 (6,420 ft) to 2,371 (7,780 ft), with an average elevation of 2,104 m (6,900 ft). Forty-one percent of the transects occurred on north-facing slopes, 31% on west slopes, 24% on east slopes, and 3% on south slopes. Average slope inclination for all transects was 4^{o}. The elevational average for this association is lower than for the type as a whole (2,104 m (6,900 ft) vs. 2,165 m (7,100 ft)), and slope inclination is the same as that for the type. Transects sampled in this association occurred primarily on Glendive soils.

The primary criterion used to distinguish this association is the occurrence of sagebrush-dominated areas on valley-bottom or alluvial soils (Table 2.3-25). Bottomland sage associations are generally distinguished from adjacent upland sage associations by the taller stature of big sagebrush, and the frequent presence of shrub species adapted to saline or alkaline soils (Sarcobatus vermiculatus, Atriplex confertifolia).

Twelve species contributed a total cover of 43%, and a total density of 18,880 individuals per hectare. Artemisia tridentata was the dominant species, providing a relative cover of 73%, a relative density of 56% and occurred at a frequency of 100%. Other highly frequent species were Chrysothamnus viscidiflorus and Symphoricarpos oreophilus. Total cover and density for this association was higher than for the type as a whole (43 vs. 34% cover, 18,880 vs. 14,000 individuals per hectare).

Twenty one species contributed a total herbaceous stratum cover of 5% during July, 1975. Agropyron smithii and Elymus cinereus were the dominant species, providing relative cover of 64%, and occurring at frequencies of 20 and 17%, respectively. Other frequent species with lower cover values were Sitanion longifolium and Lepidium perfoliatum. Of the ten species with the greatest cover, 5 were annual sepcies. Lepidium perfoliatum contributed the maximum forb density, 4.3 individuals per 0.5 m^2. Total cover values were less than for the type as a whole during July (5 vs. 17%) (Table 2.3-26).

The upland big sagebrush association is represented by 31 transects sampled during 1974 and 1975, of which 16 were summarized for 1975. The herbaceous stratum was measured with a total of 190 quadrat locations of which 40 were sampled 3 times during 1975. Two strata and 66 species were identified for the upland big sagebrush associations: 15 shrub species and 51 herbaceous species.

The upland big sagebrush association occupied an elevational range of 1,981 m (6,500 ft) to 2,601 m (8,530 ft), with an average elevation of

2,195 m (7,200 ft) (Figure 2.3-1). Forty-one percent of all transects occurred on north-facing slopes, 31% on west slopes, 24% on east slopes, and 3% on south slopes. Average slope inclination for all transects was 4^{o}. The elevational average for this association is slightly higher than the type average [2,195 m (7,200 ft) vs. 2,165 m (7,100 ft)], and degree of slope is the same as that for the type. Transects sampled in this association occurred primarily on Rentsac and Rentsac-Piceance soils.

The primary criterion used to define this association is the occurrence of sagebrush-dominated areas on gentle valley side slopes, and on ridgetops. Upland sagebrush associations are further distinguished from adjacent bottomland sagebrush associations by their generally lower stature, and the frequent presence of shrub species that are constituents of the mixed brush and pinyon-juniper types.

Fifteen species contributed a total cover of 30%, and total density of 9,345 individuals per hectare. Artemisia tridentata was the dominant species, providing a relative cover of 73%, relative density of 60%, and occurring at 98% frequency. Other frequent species were Chrysothamnus visicidiflorus, Amelanchier utahnesis, and Symphoricarpos oreophilus. The presence of young Pinus edulis and Juniperus osteosperma indicates the capacity of these species to successfully invade upland sagebrush areas. Total cover was similar and total density less than the type as a whole (9,345 vs 14,000).

Fifty-one species contributed a total herbaceous stratum cover of 26% during July 1975 (Table 2.3-26). Lupinus caudatus and Poa sandbergii were the dominant species showing high frequency on these transects was Agropyron smithii. Of the 10 species with greatest cover, all 10 are perennial species. Galium boreale contributed maximum forb density, 10.1 individiual per 0.5 m^{2}.

Due to differences in physiognomy, stand density, and cover, the transects in the sagebrush type were divided between upland and bottomland stands for graphical presentation (Figures 2.3-8 and 2.3-9). Shrub and herbaceous cover were plotted alone against elevation, since no transects were taken on steep slopes and no strong tendency for transect slope aspects to be grouped

around particular directional quardrants were apparent from the data. Shrub cover showed great variability for both bottomland and upland a associations. Mean cover and elevation and their standard deviations were calculated for each 500 ft interval for the plotted points. The mean cover values, although showing great variance, indicate that there may be a tendency for upland sagebursh shrub cover to increase slightly with altitude, from approximately 2,200 m^2 per hectare at 2,012 m (6,600 ft) to 2,750 m^2 per hectare at 2,332 m (7,650 ft). The bottomland sagebrush stands showed no consistent responses to altitude. The variability in bottomland sagebrush stands may be related in part to the differential proximity of the root systems of sampled plants to deep sources of water along gully bottoms as well as the factor of human and animal disturbance along valley bottoms. The major observation that can be drawn from the shrub cover data is the much higher cover of the bottomland sage association over the upland sage association. Herbaceous cover in the bottomland sage association is uniformly low, but herbaceous cover generally increases with altitude in the upland sagebrush transects, which may be a response to greater precipitation and generally lower shrub competition.

2.3.1.3.3.6 Greasewood - The greasewood type was sampled with three permanent and 10 non-permanent transects. Shrub and tree strata, when present, were measured on all transects. A total of 70 0.5 m^2 quadrats were used to sample the herbaceous stratum. Thirty of these quadrats were sampled 3 times on the 3 permanent transects. Two strata and 26 species were identified for the greasewood association type: 7 species in the shrub stratum, and 19 species in the herbaceous layer.

Greasewood occurs as small isolated patches within the bottomland sagebrush association. Because of the limited distribution of this type and its close relationship with sagebrush communities, the greasewood type is also considered an association within the sagebrush type within the boundaries of the study area.

The greasewood type was sampled over an elevational range of 1,890 m (6,200 ft) to 2,134 m (7,000 ft), with an average elevation of 1,996 m (6,550 ft) for

the transects sampled (Figure 2.3-1). Forty-six percent of the transects occurred on south-facing slopes, 38% on east slopes, and 16% on north slopes. The average degree of slope for all transects was 2^{o}.

Of the four transects occurring within the mapped area, 75% occurred in the Glendive soil series. These soils are deep, well-drained, and formed in alluvial materials. They are in valleys with slopes of 2 to 9%. Twenty-five percent of the transects occurred on the Harve soil series. These soils are deep, well-drained, and formed in calcareous mixed alluvium. They occur on flood plains and low terraces with slopes of 0 to 8%.

In the shrub-tree seedling stratum (Table 2.3-27), 5 species contributed 44% total cover and total density of 9,504 individuals per hectare. Artemisia tridentata and Sarcobatus vermiculatus were the dominant species, together contributing a relative cover of 91%, and relative density of 79%. Both species occurred at a constancy of 100%. Other frequent associates were Chrysothamnus nauseosus, Chrysothamnus viscidiflorus, and Atriplex confertifolia. Estimated mean volume of Sarcobatus vermiculatus was 0.65 m^3; Artemisia tridentata was estimated at 0.16 m^3, indicating the larger size of the Sarcobatus. One of the dominant species, Sarcobatus vermiculatus, was vegetative during May-June and July, and was disseminating seeds in September. Of the 5 species sample during May-June, all were in a vegetative state. Of the 4 species sampled during July, 2 were in a vegetative state, and 2 were forming flowers. Of the 3 species encountered in September, 1 was blooming, 2 were forming seeds, and 1 was disseminating seeds.

In the herbaceous stratum (Table 2.3-28), 11 species contributed 12% cover during May-June. Two annual forbs, Lappula redowskii and Chenopodium fremontii, were the predominant species over the type, contributing relative cover of 47%. Other species with high constancies were Descurainia pinnata and Agropyron smithii. Of the 11 species sampled in May-June, 6 were in a vegetative state and 3 were forming flowers.

Thirteen species contributed 29% cover during July 1975. An annual forb, Kochia iranica, was the dominant species, with a relative cover of 32%. Other species with high constancy in this type were Chenopodium album, Agropyron smithii, and Chenopodium fremontii. Eighty-two percent of the species encountered in May-June were found again in July. Sociability values were high for Kochia iranica, Chenopodium album, and Chenopodium fremontii, indicating a clumped distribution for these species. Kochia iranica contributed the maximum forb density, 35.1 individuals per 0.5 m^2 Of the 13 species sampled in July, 8 were in a vegetative state, 2 were forming flowers, 3 were forming seeds, and 2 were declining.

Thirteen species contributed a total cover of 17% during September 1975. Kochia iranica and Chenopodium fremontii were the dominant species over the type, providing a relative cover of 55%, and occurring at constancies of 33 and 100%. Density of Kochia iranica and Chenopodium fremontii remained high, in concordance with previous sampling. Of the 13 species sampled during September, 7 were in a vegetative state, 1 was flowering, 1 was forming and disseminating seeds, and 5 species were declining or dormant.

2.3.1.3.3.7 Rabbitbrush - The rabbitbrush type was sampled during 1974 and 1975 with two permanent and nine non-permanent transects. Shrub and tree strata were measured on all transects. A total of 70, 0.5 m^2 quadrats were used to sample the herbaceous stratum. Twenty of these quadrats were sampled three times on two permanent transects. Two strata and 33 species were identified for the rabbitbrush type: 7 species in the shrub stratum, and 26 species in the herbaceous layer.

The rabbitbrush communities sampled in the study area represent a seral stage in the bottomland sagebrush association. Field observations and previous work in this area (Vories, 1974) indicate that high density rabbitbrush stands are the result of rapid invasion by rabbitbrush (Chrysothamnus) species into abandoned agricultural or burned sites which were formerly dominated by Artemisia tridentata. Since Artemisia tridentata provides little cover, but high density in the sampled rabbitbrush stands (Table 2.3-29), it may be inferred that big sagebrush seedling are reinvading many of these rabbitbrush-dominated sites. Because of this interrelationships between

Artemisia and Chrysothamnus, the rabbitbrush type is considered a variant, or association of the bottomland sagebrush association, but is treated as a type to maintain consistency with other aspects of the study program. The rabbitbrush type was sampled over an elevational range of 1,921 m (6,300 ft) to 2,098 m (6,880 ft), with an average elevation of 6,610 ft for the transects sampled (Figure 2.3-1). Fifty-four percent of the transects occurred on north-facing slopes, 38% on south slopes, and 8% on east slopes. The average degree of slope for all transects was 1^{o}.

Of the seven transects occurring within the mapped area, 57% occurred on the Harve soil series. These soils are deep, well-drained, and formed in calcareous mixed alluvium. They occur on floodplains and low terraces with slopes of 0 to 8%. Forty-three percent of the transects occurred on the Glendive soils series. These soils are deep, well-drained, and formed in alluvial materials. They are in valleys with slopes of 2 to 9%.

In the shrub stratum (Table 2.3-29), 6 species contributed 39% cover, and total density of 13,835 individuals per hectare. Chrysothomnus visciflorus and Chrysothamnus nausesus were the dominant species, providing 91% relative cover and a relative density of 68%, and occurring at a constancy of 63 and 88%, respectively. Mean volume for Chrysothamnus viscidiflorus was estimated at 0.02 m^3; Chrysothamnus nauseous was estimated at 0.34 m^3. The two dominant species, Chrysothamnus viscidiflorus and C. nauseousus, were in a vegetative state during May-June, were forming flowers during July and were flowering or forming seeds during September. Of the 3 species encountered in July, all 3 were forming flowers. Of the 4 species encountered in September, 2 were in a vegetative state, 3 were flowering, 3 were forming seeds, 2 were disseminating seeds, and 1 was declining.

In the herbaceous stratum (Table 2.3-30), 13 species and one unknown contributed 26% total cover during May-June 1975. A perennial grass, Elymus cinereus, was the dominant species over the type, contributing 79% relative cover, and occurring at a constancy of 100. Of the 13 species encountered during May-June, 9 were in a vegetative stage, 5 were forming flowers, 3 were flowering, and 1 was forming seeds.

Nine species and one unknown contributed 44% total cover during July 1975. Elymus cinereus was again the dominant species, contributing 84% relative cover. Chenopodium fremontii contributed maximum forb density, 0.6 individuals per 0.5 m^2. Of the nine species identified during July, 3 were in a vegetative state, 5 were disseminating seeds, and 1 was declining.

Twelve species contributed 29% total cover during September. Elymus cinereus was again the dominant species, providing 62% relative cover. Chenopodium fremontii again contributed maximum forb density, 0.7 indiviudals per 0.5 m^2. Of the 12 species encountered during September, 3 were in a vegetative state, 2 were flowering, 3 were forming seeds, 3 were disseminating seeds, and 6 were declining, dormant, or dead.

2.3.1.3.3.8 Bald - The bald type was sampled with 2 permanent and 13 non-permanent transects. Shrub and tree strata, when present were measured on all transects. A total of 120, 0.5 m^2 quadrats was used to sample the herbaceous stratum. Twenty of these quadrats were sampled three times on two permanent transects. Three strata and 75 species were identified for the bald type: 2 species in the mature tree stratum, 14

species in the shrub stratum, and 61 species in the herbaceous layer. Pinus edulis and Juniperus osteosperma occurred in both the tree and shrub strata.

The bald type was sampled over an elevational range of 2,231 m (7,320 ft) to 2,606 m (8,550 ft), with an average elevation of 8,310 ft for the transects sampled (Figure 2.3-1). Eighty percent of the transects occurred on west-facing slopes, 20% on south-facing slopes. The average degree of slope for all transects was 8^{o}.

Of the four bald transects sampled within the mapped area, 75% occurred on a combination of Rentsac and Piceance soil associations. The remaining 25% occurred on the Rentsac soil series. Both series are on foothills, upland slopes, and ridges, which are derived from sandstone, and are well-drained. The Rentsac soils are shallow, with slopes of 5 to 15%.

Pinus edulis provided no cover, a density of 5 individuals per hectare, a basal area of 4 m^2 per hectare, and occurred at a constancy of 33% (Table 2.3-31).

In the shrub-tree seedling stratum (Table 2.3-32), 13 species provided 2% total cover, and a total density of 8,150 individuals per hectare. Artemisia frigidia was the dominant species, providing a relative cover of 56%, relative density of 66%, and occurring at a constancy of 45%. Other highly constant species which contributed high density but low cover were Tetradymia canescens, Symphoricarpos oreophilus, and Chrysothamnus viscidiflorus. Mean volume for Amelanchier utahensis was 10.89 m^3, and for Purshia tridentata was .05 m^3. Of these seven species sampled

during May-June, all were in a vegetative state. Of the 8 species sampled in July, 7 were vegetative, and 2 were forming flowers. Of the eight species sampled during September, 2 were in a vegetative state, 4 were forming seeds, 5 were disseminating seeds, and 2 were declining.

In the herbaceous stratum (Table 2.3-33), 43 species contributed 9% cover in the quadrats sampled in June. Two species of perennial grasses Agropyron trachycaulum and Koeleria gracilis, shared dominance over the type providing a relative cover of 30%. Other highly constant species were Gutierrezia sarothrae, and Trifolium gymnocarpon. Of the 43 species sampled during May-June, 36 were in a vegetative state, 13 were forming flowers, and 6 were flowering.

Forty-six species contributed 21% cover during July. Agropyron trachycaulum, Koeleria gracilis, Astragalus spatulatus, and Penstemon caespitosus were the dominant species over the type providing relative cover of 35% and occurring at constancies of 80, 100, 100, and 100%. Other highly constant species were Poa sandbergii and Hymenoxys acaulis. Sixty-eight percent of the species encountered in the May-June transects were found again in the July transects. Maximum forb density was contributed by Hymenoxys acaulis, 4.9 individuals per 0.5 m^2. Sociability values were low for all forb species, indicating a dispersed and heterogeneous distribution of this group. Of the 46 species encountered in July, 29 were in a vegetative state, 9 were forming flowers, 12 were flowering, 15 were forming seeds, 14 were dispersing seeds, and 7 species were declining.

Twenty-three species contributed 17% total cover during September. Poa sandbergii, Haplopappus acaulis, and Agropyron trachycaulum were the dominant species over the type, providing a relative cover of 57% and all occurring at a constancy of 100%. Ninety-six percent of the species found in September were also found during July. Haplopappus acaulis contributed the maximum forb density, 4.8 individuals per 0.5 m^2. Sociability values were low in concordance with previous sampling. Of the 23 species encountered in September, 21 were in a vegetative state, 2 species were disseminating seeds, 2 were declining, and 1 was dead or dormant.

2.3.1.3.3.9 Shadscale - The shadscale type was sampled with two permanent and seven non-permanent transects. Shrub and tree strata, when present, were measured on all transects. A total of 60, 0.5 m^2 quadrat locations were used to sample the herbaceous stratum. Twenty of these quadrats were sampled three times on the two permanent transects. Three strata and 33 species were identified for the shadscale type: one species in the mature tree stratum, 13 species in the shrub stratum, and 19 species in the herbaceous layer.

The shadscale type was sampled over an elevational range of 6,460 feet to 6,810 feet, with an average elevation of 6,600 feet for the transects sampled (Figure 2.3-1). Eighty-eight percent of the transects occurred on south-facing slopes, and 12% on east-facing slopes. The average degree of slope for all transects was 17^{o}.

Of the three transects that occurred within the mapped area, 100% occurred on rock outcrops and Toriorthent soils. These shallow soils are derived from sandstone cliffs or platy siltstone outcrops on south-facing slopes of many drainages. The slopes are usually steep, from 12 to 90%.

Juniperus osteosperma was the only tree species occurring in the mature tree stratum, providing 3% cover in 1975, a density of 30, and basal area of 2 m^2 per hectare (Table 2.3-34).

In the shrub-tree seedling stratum (Table 2.3-35) twelve species contributed 14% total cover, and total density of 5,603 individuals per hectare. Dominant species over the type were Artemisia tridentata and Atriplex confertifolia, contributing relative cover of 83%, and a relative density of 66%, and occurring at a constancy of 100%. Other highly constant species were Tetradymia canescens, Sarcobatus vermiculatus, and Chrysothamnus nauseosus. Mean volume for Atriplex confertifolia was 0.01 m^3, and 0.17 m^3 for Artemisia tridentata. Of the nine species sampled in May-June, all were in a vegetative state. Of the nine species sampled in July, five were in a vegetative state, and four were forming flowers. Of the seven species sampled in September, three were in a vegetative state, one was forming flowers, two were flowering, four were forming seeds, and one was disseminating seeds.

In the herbaceous stratum (Table 2.3-36) nine species contributed less than 1% cover on the May-June transects. Two perennial forbs, Eriogonum lonchophyllum and Artemisia frigida, were the dominant species over the type, contributing a relative cover of 53%. Of the nine species sampled during May-June, all were in a vegetative state.

Nine species contributed 3% cover in quadrats sampled in July. Eriogonum lonchophyllum and Haplopappus nuttallii were the dominant species over the type, contributing a relative cover of 69%, and occurring at a constancy of 50%. Other species found on both transects were Oryzopsis hymenoides and Sitanion longifolium. Sixty-seven percent of the species encountered in June were found again in July. Eriogonum lonchophyllum contributed maximum forb density, 2.9 individuals per 0.5 m^2. All species occurred at low densities and frequencies. Of the nine species encountered during July, six were in a vegetative state, one was forming flowers, one was flowering, one was forming seeds, and one was disseminating seeds and declining.

Eight species contributed 2% cover in the quadrats sampled during September. Eriogonum lonchophyllum was again the dominant species, providing a relative cover of 48%. Of the eight species encountered in September, four were in a vegetative state, one was blooming, one was declining, and two were dead or dormant.

2.3.1.3.3.10 Riparian - The riparian type was sampled during 1974 and 1975 with three permanent and ten non-permanent transects. Shrub and tree strata, when present, were measured on all transects. A total of 100, 0.5 m^2 quadrats were used to sample the herbaceous stratum. Thirty of these quadrats were sampled three times on the three permanent transects. Three strata and 89 species were identified for the riparian type: one species in the mature tree stratum, 20 species in the shrub stratum, and 69 species in the herbaceous layer. Populus tremuloides occurred in both the tree and shrub strata.

The riparian type was sampled over an elevational range of 6,350 feet to 7,600 feet, with an average elevation of 6,800 feet for the transects sampled (Figure 2.3-1). Fifty percent of the transects occurred on east-facing slopes, 40% on

north slopes, and 10% on south slopes. The average degree of slope for all transects was 3^{0}.

Of the four transects occurring within the mapped area, 75% occurred on the Harve soil series. These soils are deep, well-drained, and formed in calcareous mixed alluvium. They occur on flood plains and low terraces with slopes of 0 to 8%. Twenty-five percent of the transects occurred on the Glendive soils series. These soils are deep, well-drained, and formed in alluvial materials. They occur in valleys with slopes of 2 to 9%.

In the mature tree stratum, Populus tremuloides was the only tree species recorded (Table 2.3-37). It contributed 3% total cover, a density of 33 per hectare, and a basal area of 0.12 m^2 per hectare. A few large individuals of Populus angustifolia were observed at Cottonwood Spring, T15, R99W, Section 19, but were not encountered in the sampling transects.

In the shrub-tree seedling stratum (Table 2.3-38) 19 species contributed a total cover of 26%, and total average density of 5,203 individuals per hectare. Artemisia tridentata and Chrysothamnus nauseosus were the dominant species in 1975 samples, providing relative cover of 29%, a relative density of 36%, and occurring at constancies of 67 and 89%, respectively. Mean volume for Chrysothamnus nauseosus was 0.02 m^3. The dominants listed above were most frequent along intermittent washes and gullies within the study area. In isolated springs a number of more characteristic riparian species were found, including Betula fontinalis, Salix exigua, Salix interior, and Swida sericea. Of the nine species found during May-June, seven were in a vegetative state, four were forming flowers, and one was flowering. Of the 12 species found during July, five were in a vegetative state, three were forming flowers, one was flowering, eight were forming seeds, and three were disseminating seeds. Of the 14 species encountered in Spetember, nine were in a vegetative state, one was flowering, three were forming seeds, and seven were disseminating seeds.

In the herbaceous stratum (Table 2.3-39) 21 species contributed 50% total cover during May-June. Agropyron repens was the dominant species, providing 71% relative cover, and occurring at a constancy of 75%. Other highly constant

species were Taraxacum officinale, Poa pratensis, and Juncus balticus. Of the 21 species encountered in May-June, 17 were in a vegetative state, three were forming flowers, four were flowering, and one species was forming seeds. Thirty-five species and one unknown provided 57% cover during July. A perennial grass, Agropyron repens, was again the dominant species, providing 24% relative cover. The large increase in the number of herbaceous species during July is the result of additional herbaceous sampling on two non-permanent transects. Other species with high constancy were Poa pratensis and Taraxacum officinale. Kochia iranica contributed maximum forb density, 2.2 individuals per 0.5 m^2. Sociability values were high for Kochia iranica, Smilacina stellata, and Solidago sp., indicating that these species were clumped, and infrequently encountered. Of the 35 species identified for July, 16 were in a vegetative state, two were forming flowers, 13 were flowering, 19 were forming seeds, and three were disseminating seeds.

Twenty-five species contributed 85% total cover during September. Two perennial grasses, Elymus cinereus and Agropyron repens, were the dominant species, providing relative cover of 70%, and occurring at a constancy of 67%. Other species with high constancies were Erigeron speciosus, Carex lanuginosa and Taraxacum officinale. Maximum forb density was contributed by Erigeron speciosus, 26.8 individuals per 0.5 m^2. Of the 25 species encountered during September, ten were in a vegetative state, one was forming flowers, three were flowering, five were forming seeds, eight were disseminating seeds, and six species were declining, dead or dormant.

2.3.1.3.4 Quarterly Data (September through November, 1975) - Representative areas within each of the major vegetation types were added to the study area species list.

Most of the vegetation was rapidly approaching dormancy due to extremely dry conditions prevailing during late summer. A seasonal decline in number and cover of herbaceous species was observed in nearly all vegetation types. Greatest decline in cover was measured in the aspen and greasewood types. Most herbaceous species were dispensing seeds or declining in vigor.

In the shrub stratum, woody composite species such as rubber rabbitbrush, green rabbitbrush, and big sagebrush were flowering. Nealy all other shrub species were showing signs of seasonal severance (dying of foliage). Almost no fruits were observed on Utah serviceberry and chokecherry indicating that these species had already fruits or had produced a sparse crop. Substantial acorn production was observed for Gambel Oak. Few new cones were observed on pinyon pine trees in the study area.

2.3.1.4 Summary and Conclusions

2.3.1.4.1 Literature Review - Published literature on the vegetation of the Tract C-a study area is sparse (Ward and Slauson, 1972). The dominant vegetation of the Douglas-fir, pinyon-juniper and oak-mountain mahogany zones of the Rocky Mountains is described by Daubenmire (1943), Oosting (1956) and Billings (1966). The desert flora and vegetation typical of the Great Basin Desert to the west of the study area are described by Shreve (1942), Oosting (1956), Billings (1966) and Fautin (1946). Economically important forage types and species for the Rocky Mountain area are described by Costello (1944).

Earlier studies of the area were conducted mainly by the Bureau of Land Management (BLM) and the Soil Conservation Service (SCS). The BLM vegetation maps are general, distinguishing only three vegetation types: pinyon-juniper, sagebrush and mountain shrub (Ward and Slauson, 1972).

Regional studies include reports prepared for the Oil Shale Surface Rehabilitation Study by Ward et al. (1973) and by Terwilliger (1973). Ward et al. (1973) included a classification scheme of major vegetation types with observations of community composition and structure, diversity, productivity, horizontal and vertical patterns, scale of vegetation mosaic, and ecological amplitude for selected species. A similar identification scheme was prepared by Terwilliger (1973) including a plant list with 117 species.

A more intensive study providing quantitative information on community composition and structure was conducted by Ferchau (1973) on the Colony Development Operation properties in the upper Parachute Creek drainage from 1971-73. The most recent regional study identified and classified 35 associations in the five major climate zones represented in the study area (Vories, 1974). This study quantified the structure, composition and topographic components of each association and graphically portrayed the ecological amplitudes of the 413 species identified in the study.

2.3.1.4.2 Climate - The elevation of the Tract C-a study area ranges from a low of 1,890 m (6,200 ft) at the junction of Duck Creek and Yellow Creek to a high of 2,644 m (8,675 ft) on Cathedral Bluffs near the headwaters of Spruce Gulch. The climate of the area is classified as arid steppe and is characterized by abundant sunshine during all seasons, insufficient precipitation for vigorous vegetative growth, warm summer temperatures and low relative humidity (Marlatt, 1973).

The scarcity of precipitation, hot summers and incidence of thunderstorms (Marlatt, 1973) has been conducive to fires from lightning and human carelessness. The incidence of fire was noted most commonly in the pinyon-juniper type, but was also evident in some Douglas-fir stands. Precipitation in the

Piceance Basin ranges from 28 cm (11 in) in the northwest corner to 64 cm (25 in) on the Roan Plateau. The major portion of the Piceance Basin receives 36 to 38 cm (14 to 15 in) of precipitation, with about equal monthly distribution (Terwilliger, 1973).

2.3.1.4.3 Soils - The soils of the study area are part of the plateau land type within the Piceance Basin. These soils are derived from Evacuation Creek sandstones, shales and marls. The soils are primarily formed in place except for the alluvial deposits found in most of the drainages. The plateau soils are generally shallow sandy loams that range in depth from almost zero on rock outcrops to more than 61 cm (24 in) under dense aspen stands (Thorne Ecological Institute, 1973). The major influence of soils on vegetation in the study area has been the dominance of desert shrub types on alluvial wind-deposited or saline-sodic soils. Forest, mountain shrub, or woodland types dominate the residual soils.

2.3.1.4.4 Floristics - The flora identified in the Tract C-a study area during 1974-1975 includes five tree species, 36 shrub species, and 168 herbaceous species, of which 44 species are classified as grass or grass-like (Table 2.3-1). Three species included in the flora require special notation. A milkvetch, Astragalus lutosus, is on the Smithsonian Institution endangered plant species list (Smithsonian Institution, 1975) and was located near Cottonwood Springs on Big Duck Creek. Aquilegia barnebyi, a columbine endemic to the Green River formation (Munz, 1949), was located near Cottonwood Springs on Big Duck Creek. Colorado columbine, Aquilegia caerulea, (Harrington, 1964) is the state flower and was located in most of the aspen stands and some of the more mesic mixed brush and Douglas-fir stands near Cathedral Bluffs.

2.3.1.4.5 Phytogeography - The flora of the Tract C-a vicinity is primarily a combination of members of the tropically derived desert species of the Madro-Tertiary flora and the boreally derived forest species of the Arcto-Tertiary flora (Axelrod, 1940; 1958).

The dominant species of these flora form a mosaic of plant associations representative of two major vegetation formations: the cold desert formation (Oosting, 1956), dominated by big sagebrush (Artemisia tridentata), shadscale (Atriplex confertifolia), and black greasewood (Sarcobatus vermiculatus); and the needle-leaved forest formation of the Rocky Mountain forest complex (Daubenmire, 1943), dominated by Douglas-fir (Pseudotsuga menziesii), quaking aspen (Populus tremuloides), Utah serviceberry (Amelanchier utahensis), pinyon pine (Pinus edulis), and Utah juniper (Juniperus osteosperma). The mosaic of plants within these major formations is the result of the differing ecological amplitudes of the dominant species and the alteration of climatic and edaphic gradients created by the diverse topography (Vories, 1974).

2.3.1.4.6 Abiotic Factors Affecting Plant Distribution - Vegetation development in the study area is primarily affected by its relationship to the following factors: the overall climatic regime, elevational gradient, topography, geology,and soil development.

Aspects of the climatic regime of critical importance to plants are distribution and amount of rainfall and snowfall, length of the growing season, maximum and minimum temperatures for a given area, and the frequency and velocity of wind. Available soil moisture is a major determining factor in plant distribution in this region. Temperature and wind affect the water evaporation rate from soil, which affects moisture availability to plants. Length of growing season, and maximum and minimum temperatures define limits within which plant species must be physiologically tolerant, and capable of reproduction. Wind is also important in defining snowdrift patterns which affect soil moisture.

An increase in elevation has the general effect of increasing precipitation, decreasing temperature and decreasing soil pH (Daubenmire, 1943). The elevation gradient is particularly evident in the study area, with a rise in elevation (approximately 2,500 feet) from the floor of the Piceance Basin to the summit of Cathedral Bluffs on the western perimeter of the Basin.

Variations in topography affect the amount of sunlight striking different slopes. The steepness of slope affects the angle with which the sun's rays strike the slope, and the direction of slope affects the duration that the sun shines on a slope. North-facing slopes are cooler and wetter than all other slope aspects, and south-facing slopes are drier and hotter. East and west-facing slopes are intermediate in temperature and moisture, with east-facing slopes being cooler and wetter than west-facing slopes. This is caused by the higher air temperatures prevalent during exposure to the afternoon sun. Because of these topographic modifications, plant associations from a lower, drier vegetation zone may be found on generally south-facing slopes in a higher zone, and plant associations from a higher, wetter zone may be found on the north-facing slops of a lower zone.

The geology of an area largely determines the types of soil that develop. Physical properties of soils determine aeration and moisture-holding capacity, and chemical properties are important in determining the avilability of nutrients and water to plants. Soil depth is important in determining moisture availability. Location of the water table affects the distribution of plant species, particularly along alluvial stream bottoms.

2.3.1.4.7 Biotic Factors Affecting Plant Distribution - The effects of wildlife and terrestrial invertebrates on vegetation composition and structure are developed in detail in other parts of this report and are mentioned here to indicate their importance in determining vegetation distribution and overall vegetation development.

At the lower elevations,shrub and tree species are selectively browsed by deer, resulting in a localized alteration of plant species composition and structure. Desirable plants, such as mountain mahogany, are heavily pruned, frequently releasing undesirable species from competition.

At the higher elevations within the pinyon-juniper woodland, the girdling of pinyon trunks by porcupines is common. Boring beetle infestations on pinyon pine, galls on Utah juniper, and tent caterpillars on Utah serviceberry and

mountain mahogany were observed to produce a localized loss of production and plant vigor.

The historic effects of man on the vegetation of the study area include the conversion of bottomland sage areas into hay meadows and the introduction of livestock and exotic plant species. The response of the native vegetation has been an alteration of community composition and structure due to the selective grazing pressures of livestock, and the invasion of exotic plant species on disturbed sites.

2.3.1.4.8 Vegetation Types

2.3.1.4.8.1 Aspen - The aspen type on the study area is characterized by the constant presence of aspen, and dense and diverse shrub and herbaceous strata, consisting primarily of serviceberry in the shrub stratum, and elk sedge (Carex geyeri) in the herbaceous stratum.

The type ranges in elevation from 8,140 ft to 8,560 ft on steep, north and east-facing slopes. The soils are generally deep sandy loams with large accumulations of organic matter.

The type is bordered at the higher elevations by the Douglas-fir type and at lower elevations by the mixed brush type. A few seedlings of Douglas-fir were found in areas where the aspen and Douglas-fir type bordered each other. Although aspen often precedes Douglas-fir in succession (Daubenmire, 1943), the low presence and reproductive success of Douglas fir in aspen stands indicated that most stands were not being replaced by Douglas-fir in the study area. The large number of aspen saplings and lack of mature trees in size classes greater than 24 cm (9.4 in) indicated a relatively high mortality rate and rapid turnover of individuals within the aspen population. This observation agrees with tree core samples collected by Vories (1974), which showed 67% of the aspen to be under 6 in. in diameter and less than 48 years old. Only 1% of the aspen trees were above 12 in. in diameter and over 64 years old. Also noted was the high incidence of heart rot in the larger size classes of quaking aspen.

Aspen reproduction by seeds is vary rare, and nearly all populations are clonal (sharing a common root system which sends up individual stems). Despite the short life span of individual trunks, the substantial resprouting observed in nearly all stands sampled indicates that most aspen stands within the study area are presently self-sustaining.

The diverse (14 species) shrub stratum is dominated by Saskatoon serviceberry (Amelanchier alnifolia) and Utah serviceberry. These species provide 19% and 14% cover, respectively. Common black chokecherry (Prunus virginiana, 12% cover) is also present. Mountain snowberry (Symphoricarpos oreophilus) is common as a low shrub and may dominate in more open stands, especially near the forest edge. Species such as Rocky Mountain maple (Acer glabrum) and Greene's mountain ash (Sorbus scopulina) were found in the moist sites. Phenology data indicate that the dominant shrub species, serviceberry and chokecherry, bloom in the spring, and produce ripening fruits by July. Common understory plants such as snowberry and Wood's rose (Rosa woodsii) bloomed in July, indicating a sustained period of flowering within the shrub stratum of this type, which may reflect a long period of available moisture.

Forbs characteristic of the summer growth included Canada violet (Viola canadensis), mountain thermopsis (Thermopsis montana), sweet root (Osmorhiza depauperata), and northern bedstraw (Galium boreale). Elk sedge achieves its highest cover values in the fall (6%) while most of the forb species become reduced in total cover. Low goldenrod (Solidago multiradiata) did not account for a large portion of the total cover (2% in July and 1% in September) but is strikingly noticeable in aspen stands of the study area because of its height.

The margins of the aspen stands were relatively open and grazed by livestock. The interior of the stands were steep and tangled by shrubs and fallen trees with no indication of livestock grazing.

2.3.1.4.8.2 Douglas-fir - The Douglas-fir type is characterized by the constant presence of Douglas-fir, and a dense and diverse shrub stratum. The herbaceous stratum is dominated by elk sedge. The Douglas-fir type is

restricted to higher elevations in the study area near the summit of Cathedral Bluffs, occurring on steep north and east-facing slopes. Douglas-fir dominates the tree stratum, providing nearly 100% relative cover, and occurs at densities of approximately 500 individuals per hectare. Uniform distribution of trees in the mature size class, and a very large percentage of all trees occurring in the smallest size class, indicate that Douglas-fir is actively reproducing, but also has a high seedling mortality.

The shrub stratum in the Douglas-fir type consists of two layers. The upper layer is dominated by Utah serviceberry, which occurs in large clones, and ranges in height to 3 m. The lower layer is dominated by mountain snowberry, which occurs at high densities and is usually less than 1 m in height. Together, the two species provide 42% of the total cover, and 46% of the total density. Both species were leafing out in May-June of 1975, and snowberry was flowering and serviceberry was forming fruits in July, 1975. Both species were recorded as vegetative in September, 1975.

Herbaceous species diversity and total cover is lower than in aspen stands at comparable elevations, indicating that Douglas-fir may exert a greater limiting influence on the herbaceous stratum than aspen. Elk sedge was the dominant species during all sampling periods, providing relatively constant cover of approximately 10% throughout the year. Maximum cover and species diversity occurred during July, when 23 species provided 23% total cover. Approximately 80% of the same species were present during sequential sampling periods. The dominant species, elk sedge, flowers in late spring shortly after snowmelt.

2.3.1.4.8.3 Mixed Brush - The mixed brush type is characterized by the tall shrub life form of three species, Gambel oak, Utah serviceberry, and true mountain mahogany. The type occurs over an elevational range of 7,150 ft to 8,600 ft. The type occurs on a wide range of slopes from steep to gentle, and at all slope aspects. The best shrub development occurs on the steep north and east-facing slopes within the type. The soils associated with this type are shallow to moderately deep, well-drained sandy loams.

The mixed brush type intergrades with the aspen and Douglas-fir types on steep slopes at the upper elevations, and on the more gentle upland slopes and ridges it intergrades with the sagebrush type. At the lower elevations the mixed brush type gradually intergrades with the sagebrush type or may exist as islands on steep north-facing slopes within the pinyon-juniper type.

The shrub stratum shows a wide range of diversity with up to 20 species, and is divided into a tall shrub layer dominated by Utah serviceberry (52% relative cover) and a low shrub layer dominated by big sagebrush or mountain snowberry. Gambel oak increases in importance in the wetter stands and true mountain mahogany increases in importance on drier slopes or shale outcroppings.

Phenology data indicate that the dominant shrub species, Utah serviceberry and Gambel oak, flower during the spring, snowberry flowers during mid-summer, and composite species such as big sagebrush and rabbitbrush (Chrysothamnus sp.) flower in the fall.

In the spring, elk sedge was the only dominant species, providing over 2% cover out of the total cover of 5%. Total cover increased to 11% in July, and declined to 8% in September, 1975. In September 1975, elk sedge was the only species contributing over 1% cover.

The mixed brush type is represented by two plant associations in the study area. The Utah serviceberry-Gambel oak association is distinguished by the presence of Gambel oak and a dense shrub stratum. Ordination of transects sampled in this association by elevation and slope (Figure 2.3-2) indicates the narrow elevational range of this association, and its restriction to cool, steep slopes. Ferchau (1973) and Vories (1974) observed that Gambel oak is susceptible to late frosts and infrequent in its production of viable acorns in the study area. Gambel oak grows best in areas with considerable available water, intermediate temperatures, and moderate light (Christensen, 1949). It cannot tolerate intense grazing, strong winds, very warm or cold mean annual temperatures, or deep shade. It has a wide range of tolerance to soil types.

The clonal nature of both Utah serviceberry and Gambel oak as well as their dense cover (39% and 13% cover, respectively) produces an almost impenetrable thicket. Mountain snowberry is found in abundance in the openings between the taller shrubs and beneath serviceberry plants. Common black chokecherry and Saskatoon serviceberry are found in the wettest stands within the association. Big sagebrush (8% cover) is found commonly in more open stands and near the edges of the stands.

The herbaceous stratum is relatively well-developed (maximum of 26% cover), and is dominated by elk sedge.

The second mixed shrub association is the Utah serviceberry-mountain snowberry association. This association is distinguished by dispersed, large Utah serviceberry plants (26% cover) interspersed by mountain snowberry (12% cover). It is found on dry, low elevation slopes within the mixed brush type. Elevations average approximately 92 m (300 ft) less than elevations for the previous mixed brush association (Figure 2.3-1). The elevational ranges of the two associations nearly overlap in the study area. This association occurred on gentle slopes and at all slope aspects, although it was predominantly encountered on north and east-facing slopes.

Big sagebrush (8% cover) is common in the openings among the large Utah serviceberry plants. True mountain mahogany is found in the driest stands, usually on shale outcroppings. Other species indicative of dry sites include horsebrush (Tetradymia canescens), pinyon pine, Utah juniper and prickly pear (Opuntia polyacantha). The presence of pinyon pine and Utah juniper in the shrub stratum, in addition to the scarred stumps of these two tree species in some of the stands of this association, indicates successional relationships and competition between shrub species and pinyon and juniper.

The herbaceous layer is characterized largely by drought-resistant grasses and forbs. The plants tend to be well spaced with no clearly dominant or constant species. Five species showed greater than 1% cover: needle and thread (Stipa comata), sulfur eriogonum (Eriogonum umbellatum), sandberg bluegrass (Poa sandbergii), Nuttal's goldenweed (Haplopappus nuttallii), and Indian ricegrass (Oryzopsis hymenoides).

2.3.1.4.8.4 Pinyon-Juniper - The most extensive vegetation type in the Piceance Basin and the study area is dominated by pinyon pine and Utah juniper. In the Piceance Basin in the pinyon-juniper type is completely overlapped in elevation range (6,100 to 7,875 ft) by the sagebrush type (5,975 to 8,800 ft) (Vories, 1974). In the study area, the pinyon-juniper type was sampled over an elevational range of 6,500 to 7,660 ft.

Pinyon-juniper and sagebrush are segregated by the differing abilities of the dominant species to compete with each other under differing soil conditions. Sagebrush occupies the valleys, mesas, or gentle slopes where fine-textured, deep soils are prevalent. Pinyon-juniper occupies the ridges, canyons, or steep slopes where coarse rocky soils predominate. On soils intermediate in texture and depth there is a great deal of competition between sagebrush, pinyon pine, and juniper. The pinyon-juniper type also interacts with the mixed brush type, which occupies slopes where snow accumulates in winter within the elevation range of the pinyon-juniper type (Woodbury, 1947).

Within boundaries extending one mile from the Tract C-a border, 75% of the pinyon-juniper transects sampled during 1975 occupy shallow, well-drained soils formed from sandstone on steep to gentle upland slopes and ridges. Thirteen percent of the transects occurred on steep rock outcrop areas on south-facing slopes along major drainages. Eight percent of the transects occurred on soils originating from calcareous sandstone, and 4% occurred on moderately deep, well-drained soils formed from sandstone and windblown materials. The pinyon-juniper type was found on all slope aspects and showed no significant preference for any particular aspect.

The tree canopy of pinyon and Utah juniper in the study area is usually very open (21% total cover), with the individual trees well spaced (250 individuals/ha). The density of individual stands has been observed by Woodbury (1947) to increase with the increased available moisture at higher elevations. Woodbury also noted the tendency for juniper to be more prevalent on drier sites at lower elevations and pinyon to be more prevalent on wetter sites at higher elevations. The higher basal area for Utah juniper (23 m^2/ha) versus that for pinyon (14 m^2/ha) indicates the generally larger trunk size and probable greater

age of Utah juniper on the study area. It was shown by Vories (1974) that Utah juniper has a higher average age than pinyon within any given size class for the Piceance Basin.

Ordination of shrub and tree cover for the pinyon-juniper type against elevation indicates that the species and stratum components show a pattern often expressed in other studies. In a study of the synecology of the pinyon-juniper type, in the Great Basin and Colorado Plateau, West et al. (1975) found that tree cover of these two species increased to a maximum at about 2,200 m (approximately 7,260 ft) elevation, and then declined above this point. Maximum tree cover in the study area fell very near this value. Shrub stratum cover showed an inverse pattern, providing greatest cover at the lower and higher extremes of the range of the two dominant tree species. West et al. (1975) found that big sagebrush increases in cover at the elevational extremes of the pinyon-juniper type, as indicated by the range of the pinyon-juniper/sagebrush association in this study.

The shrub stratum is diverse (17 species) but maintains a low average cover (11%). The shrub cover has been noted to increase with increasing available moisture and the removal of the tree canopy by fire or chaining. As indicated above, the shrub cover decreases with the increasing maturity of the tree species and reduction of available moisture by erosion. The most constant shrub within the type is big sagebrush. Seedlings and saplings of pinyon are common in the shrub stratum. Utah serviceberry is moderately frequent (40%) in the type and maintains a comparatively high cover (40%).

The herbaceous stratum is characterized by a high diversity (66 species),low total cover (2-6%) and the predominance of three grass species, slender wheatgrass (Agropyron trachycaulum), Sandberg bluegrass (Poa sandbergii) and Indian ricegrass (Oryzopsis hymenoides). Seasonal changes in cover are minimal and range from 2% in May-June to 6% in July, to 4% in September. No species contributed more than 0.5% cover in May-June. Three species, Agropyron trachycaulum, Poa sandbergii, and Oryzopsis hymenoides, contributed over 0.5% cover in July, while only Agropyron trachycaulum and Poa sandbergii contributed over 0.5% cover in September. The lack of herbaceous cover can be the result of several factors. The ability of pinyon and juniper litter to

inhibit germination (Jameson, 1961, 1966) is a partial explanation for the decrease in understory cover and diversity with the increasing age of a stand. The shade from the tree canopy is not usually effective in limiting understory development because of the limited canopy cover and the availability of reflected light (Shirely, 1945). Shade from the tree canopy may be beneficial to some species by reducing evaporation rates (Jameson, 1966). This was noted in the study area for Fremont goosefoot (Chenopodium fremontii) and several moss species. Competition for available moisture is thought to be more important in the distribution of understory species (Johnson, 1962; Arnold, 1964) than any other single factor in the pinyon-juniper type.

Three recognizable associations were distinguished for the study area pinyon-juniper type. They are the pinyon pine-Utah juniper-mixed brush association, the pinyon pine-Utah juniper-big sagebrush association, and the pinyon pine-Utah juniper-woodland association.

The pinyon pine-Utah juniper-mixed brush association has the highest average elevation of the three associations (7,140 ft). It is found primarily on cooler north and east-facing, relatively steep (averaging 11^{o}) slopes. The total tree cover for this association is lower than the average for the pinyon-juniper type as a whole (15 versus 21%). The high ratios of pinyon cover (11%), density (115 individuals/ha) and basal area (17 m^2/ha) to juniper cover (4%), density (58 individuals/ha) and basal area (6 m^2/ha) may be indicative of the relatively high moisture availability within this association.

The shrub stratum within this association has the greatest cover (20%) and density (5,867 individuals/ha) of any of the three associations. The most abundant shrub species are those typical of the mixed brush type, Utah serviceberry (8% cover), big sagebrush (7% cover), bitterbrush (1% cover) and true mountain mahogany (1% cover). Young pinyon plants are also frequent (90% frequency) in the shrub stratum.

The herbaceous stratum is not well developed and only supports 21 species within a total cover of 4%. Slender wheatgrass was the only species with more than 1% cover.

The pinyon pine-Utah juniper-big sagebrush association occurred at the lowest average elevation (6,310 ft) within the type. It is generally found on gentle upland slopes and ridges and shows no preference for a particular slope aspect. The comparatively high cover (11%), density (181 individuals/ha), and basal area (21 m^2/ha) of Utah juniper over the cover (9%), density (119 individuals/ha), and basal area (4 m^2/ha) of pinyon may be indicative of the relatively dry conditions that prevail at these sites.

The shrub stratum is dominated by big sagebrush with 7% cover. The remaining 13 shrub species contributed only 2% of the total 9% shrub cover and none of these species contributed more than 1% cover. The herbaceous stratum is the best developed of the three associations with 8% total cover. The six species with the greatest cover are all grasses typical of fairly dry sites, slender wheatgrass, prairie junegrass (Koeleria gracilis), needle and thread, western wheatgrass (Agropyron smithii), sandberg bluegrass, and Indian ricegrass.

The pinyon pine-Utah juniper woodland association represents the most mature stage of the pinyon-juniper type.

This association's average elevation (6,900 ft) lies near the average elevation for the pinyon-juniper (6,940 ft). This association shows no preference for any particular slope aspect and is usually located on gentle (7^o) upland slopes and ridges. The slightly higher cover (14%) and basal area (39 m^2/ha) of pinyon as compared to the cover (13%) and basal area (21 m^2/ha) of Utah juniper appear to agree with Woodbury's (1947) suggestion that pinyon tends to replace juniper in mature stands. The high total cover (27%) and basal area (60 m^2/ha) of the tree stratum for this association is indicative of the relatively large size of the trees. The low total cover of the shrub (3%) and herbaceous (4%) strata is indicative of the monopolization of the habitat by the tree species despite the moderate tree canopy cover. No shrub species provided greater than 1% cover and only one herbaceous species (Sandberg bluegrass) exhibited more than 1% cover.

2.3.1.4.8.5 Sagebrush - The sagebrush type on the study area is characterized by the constant presence, high cover, and high density of big sagebrush in the shrub stratum and by a herbaceous stratum with high species diversity, but generally low cover. The sagebrush type occurs over a wider elevational (6,420-8,580 ft) range than any other type found on the study area (Figure 2.3-1), and generally occurs on gentle slopes. The sagebrush type occurred on deep alluvial soils in valley bottoms (Glendive series), on mixtures of moderately deep aeolian and residual soils (Rentsac and Piceance series), and on gently sloping upland (Yamac series) and shallow residual soils of the Rentsac series, located primarily on uplands and valley side-slopes.

On the study area the sagebrush type intergrades with the pinyon-juniper type at lower elevations along drainages, and on uplands along the ridges above the major drainages. Boundaries between sagebrush and pinyon-juniper types are frequently very distinct along transitions between alluvial bottomland sagebrush stands and pinyon-juniper stands occurring on steep shale outcrops. Transitions are often very gradual between the two types in areas where soil depth does not vary sharply. Big sagebrush is a frequent component of the understory in the pinyon-juniper type, and decreases in abundance with increasing density and cover of pinyon and Utah juniper. The sagebrush type also intergrades gradually with the mixed brush type on gentle upland slopes. Cover of Utah serviceberry increases with increasing elevation, and with transitions to cooler slope aspects.

The shrub stratum in this type contributes an average cover of 30%, and average densities of greater than 13,000 individuals/ha over the study area. Although 17 shrub species were encountered in this type, Artemisia tridentata generally provided 75% of the total cover, and 60% of the total density in the transects sampled. Frequent associates in the sagebrush type are green rabbitbrush (Chrysothamnus viscidiflorus) and Utah serviceberry. Phenology of common shrub species is divided between fall-blooming composite species (big sagebrush and green rabbitbrush), and spring and early summer-flowering species (Utah serviceberry and mountain snowberry).

The herbaceous stratum in this type contributes cover ranging from less than 10% during May-June to a maximum of 17% during July. The herbaceous stratum is characterized by a large number of species (100) which are heterogeneously distributed, without strong dominance by any one species. This heterogeneity reflects the wide elevational range of the type, which includes a number of microclimates within its boundaries. The dominant species over the type for all sampling periods, bluegrasses, ranged in cover from 1% in May-June 1975 to nearly 2% in July. There is a high persistence of species, with approximately 70% of all species shared in common between sequential sampling periods. Flowering of herbaceous species occurs primarily in early to late spring, when highest soil moisture levels are present. Almost no species were reproductively active during September, indicating high moisture stress near the soil surface in late summer. By contrast, big sagebrush and rabbitbrush were flowering during this period.

The sagebrush type is divided into four major associations, the upland and bottomland sagebrush, rabbitbrush, and greasewood associations. The rabbitbrush and greasewood associations are discussed in separate sections. The sagebrush associations (upland and bottomland sagebrush) are distinguished from each other by their occurrence on different soil types (alluvial versus residual), and by the taller stature and greater density and cover of bottomland sagebrush stands. Ordination of these two associations against elevation (Figures 2.3-8 and 9) indicates that bottomland sagebrush has a restricted elevational range due to its occurrence at the bottom of drainages. Upland sagebrush has a much wider elevational range, occurring from nearly level areas on lower elevations of 84 Mesa up to high elevation east slopes just below the summit of Cathedral Bluffs. Cover of the bottomland sagebrush association does not show a strong response to increase in elevation. Cover in upland sagebrush transects increased slightly with elevation, but total cover was almost always less than cover in bottomland associations, regardless of elevation. These cover differences probably reflect a more reliable moisture supply in bottomland sagebrush stands. Herbaceous cover increased with elevation in the upland sagebrush association, but remained at a low level on all bottomland associations, reflecting either substantial competition from the shrubs, or intensive grazing.

The shrub stratum of the bottomland sagebrush association contributed a total cover of 43%, and a total density of 18,880 individuals/ha. Common species were big sagebrush, rubber rabbitbrush and mountain snowberry. Five percent cover was recorded for the herbaceous stratum during July. Western wheatgrass and Great Basin wild rye (Elymus cinereus) were the dominant herbaceous species.

The shrub stratum of the upland sagebrush association contributed a total cover of 30%, and total density of 9,345 individuals/ha. Other frequent species were green rabbitbrush, Utah serviceberry, and mountain snowberry. Fifty-one herbaceous species contributed 26% total cover during July, 1975. Tailcup lupine and sandberg bluegrass were the dominant species on the transects sampled.

2.3.1.4.8.6 Greasewood - The greasewood association occurs as small isolated patches within the bottomland sagebrush association. It is frequently an indicator of saline-sodic soils (Rickard, 1967), and occurs on deep, well-drained soils formed in alluvial deposits which usually have dependable groundwater. It shares dominance with big sagebrush which is an atypical situation for the two species. It is unclear whether on the study area this is due to disturbance or relative soil alkalinity.

Phenological data indicate that greasewood flowers during mid-summer, forming seeds during late summer and early fall. The highest density of sagebrush seedlings in greasewood stands indicate that greasewood may be a secondary successional element in bottomland sagebrush stands on the study area.

Seasonal variation in the herbaceous stratum shows that three annuals, annual stickseed (Lappula redowskii), fremont goosefoot, and pinnate tanseymustard (Descurrainia pinnata), were the most common species contributing over 50% of a total 12% cover during May-June of 1975. Western wheatgrass was the most common perennial species. Stands sampled in Yellow Creek have been seeded to crested wheatgrass (Agropyron desertorum).

By July the total herbaceous cover had increased from 12% cover in May-June to 29% cover. The greatest cover was again attained by annual species, summer

cypress (Kochia iranica) and lambs quarter goosefoot (Chenopodium album). These species showed a tendency to be clustered together by their high sociability values. Western wheatgrass was the most common perennial species.

Pehnological data indicate that most herbaceous species flower in spring when soil moisture is high after snowmelt.

2.3.1.4.8.7 Rabbitbrush - The vegetation association sampled in the study area represents a successional stage in the bottomland sagebrush association. Most of the stands sampled in the study area are on abandoned agricultural lands or show evidence of the removal of big sagebrush by burning, defoliation or mechanical means. Burning of rabbitbrush normally kills it back to the soil surface only, and then it sprouts from the roots and increases in density by seedling establishment (Daubenmire, 1975). Rabbitbrush has been shown to dominate and periodically reestablish itself for at least 15 years. Reduced populations of rabbitbrush persist in communities where dominant big sagebrush plants are 40 to 50 years old (Young and Evans, 1974).

In the study area the elevational, topographic, and edaphic factors are essentially the same for rabbitbrush association as they are for the bottomland sagebrush association. It is found on floodplains and low terraces along the major drainages surrounded by the sagebrush type. Rabbitbrush is always the dominant species with 90 to 91% relative cover. In the study area, rabbitbrush forms flower buds during mid-summer, and flower in late summer and early fall.

The herbaceous stratum may be dominated by Great Basin wild rye (80% relative cover), which can completely conceal the shrubs by mid-summer by attaining a greater height. Young stands of rabbitbrush were more likely to have a herbaceous understory of annuals such as Fremont goosefoot.

Herbaceous species were found flowering during May-June, and disseminating seeds by July. Some reproductive activity was still evident in September, unlike the majority of bottomland sagebrush and greasewood transects sampled, where nearly all species were vegetative, dead, or dormant.

2.3.1.4.8.8 Bald - The bald type is characterized by the absence of developed tree and shrub strata, and a diverse herbaceous cover consisting of perennial forbs and grasses. The term "bald" is derived from the "heath bald" communities found on the summits of some peaks in the Appalachian Mountains (Whittaker, 1956). Although not analagous to the Appalachian Balds, the term "bald" adequately describes the open bare slopes surrounded by communities dominated by taller shrubs or trees, and also implies a harshness which characterizes those windswept areas that occur along the summit of Cathedral Bluffs, and on exposed ridges at lower elevations. The bald type ranges in elevation from 7230 to 8550 ft, and occurs almost exclusively (80%) on west slope aspects facing the prevailing wind. Transects were sampled primarily on the Rentsac soil series. Field observations indicate that soils were frequently extremely shallow and rocky.

Shrub species occur sparingly on the bald type (1-5% cover), and are usually of very low stature. Utah serviceberry provided the most cover, but was generally restricted to more protected sites. Low stature shrubs characteristic of this type were green rabbitbrush and horsebrush.

The diverse (60 species) herbaceous stratum consists of low grass and forb species that frequently form a carpet-like mat that assists in reducing dessication by strong winds. Total cover ranges from less than 10% in May-June to greater than 20% in July. Dominance is usually shared by several species. Species contributing greatest cover were slender wheatgrass, prairie junegrass, tufted milkvetch (Astragalus spatulatus), and mat penstemon (Penstemon caespitosus). Many of the species encountered in the bald type were also encountered in the herbaceous stratum of the sagebrush and pinyon-juniper types, indicating a compositional continuity with these communities.

During the May-June, 1975 sampling period, nearly all species were in a vegetative state, over half the species were flowering or forming seeds in July, and nearly all species declined to a vegetative state in September.

2.3.1.4.8.9 Shadscale - The shadscale type occurs over a short elevational range (6,460-6,810 ft) in narrow bands on steep, generally south-

facing slopes adjacent to major drainages within the study area. It occurs on rock outcrops or very shallow soils derived from sandstone cliffs or platy siltstone outcrops.

Total shrub cover is low (14 to 16%). Shadscale shares dominance with three shrubs from the sagebrush type, big sagebrush, green rabbitbrush, and rubber rabbitbrush (C. nauseosus), indicating its close relationship to the sagebrush type.

Herbaceous cover was extremely low in May-June, totaling less than 1%. In July, it had increased in total cover to just under 3%, with eriogonum (Eriogonum lonchophyllum) measuring just over 1% cover. In September the cover values changed very little, decreasing in total cover by less than 0.5%. Indian ricegrass showed a high constancy in all sampling periods.

2.3.1.4.8.10 Riparian - The riparian type in the study area consists of three different types of environments: small springs in open alluvial bottomlands that have been converted to pastureland (e.g., Stake Springs, T2S R99W S14) occupied by common pasture weeds; hillside springs and seeps along the bottom of steep draws (e.g., Cottonwood Spring, T2S R99W S19) which are not heavily grazed and contain several unusual species for the Piceance Basin; and drainageways of intermittent streams that contain species characteristic of the bottomland sagebrush association.

Tree species were not frequent in this type. Aspen appeared on one transect sampled at a high elevation. A few large individuals of narrowleaf cottonwood (Populus angustifolia) were observed at Cottonwood Spring.

Dominants in the shrub stratum, big sagebrush and rubber rabbitbrush are found along the drainageways of intermittent streams. In a few isolated areas (Cottonwood Spring, Duck Creek), more characteristic riparian species were found: water birch (Betula fontinalis), willow (Salix exigua and Salix interior), and red osier dogwood (Swida sericea). In wet pastures, shrubs are largely absent except for rubber rabbitbrush, which occurs around the fringes. Total shrub cover for the type ranges from a low of 2% cover on disturbed pasture sites to 25% cover for transects sampled in hillside springs and along intermittent streams.

Permanent herbaceous quadrats are located in wet pasture sites. As a result, the high total cover (50 to 80%) reflects the very moist growing conditions. Quackgrass (Agropyron repens), Kentucky bluegrass (Poa pratensis) and common dandelion (Taraxacum officinale) were common constituents of wet pastures. Several unusual herbaceous species were collected on moist sites in the vicinity of Cottonwood Springs. These include an endemic columbine (Aquilegia barnebyi), and alpine pyrola (Pyrola asarifolia), a species restricted to cool, damp sites. Fowl mannagrass (Glyceria striata) was found only in areas of permanent running water.

Phenology of several species occurring in pastureland areas could not be evaluated because of heavy grazing. Species in streamside habitats were frequently found to be flowering and forming seeds on the same plant, possibly indicating a longer flowering season in these areas with greater available moisture.

Figures and Tables for the
Phytosociological Studies Section

Figure 2.3-1 Elevation range and mean of vegetation types and associations occurring on the Tract C-a Study area for RBOSP

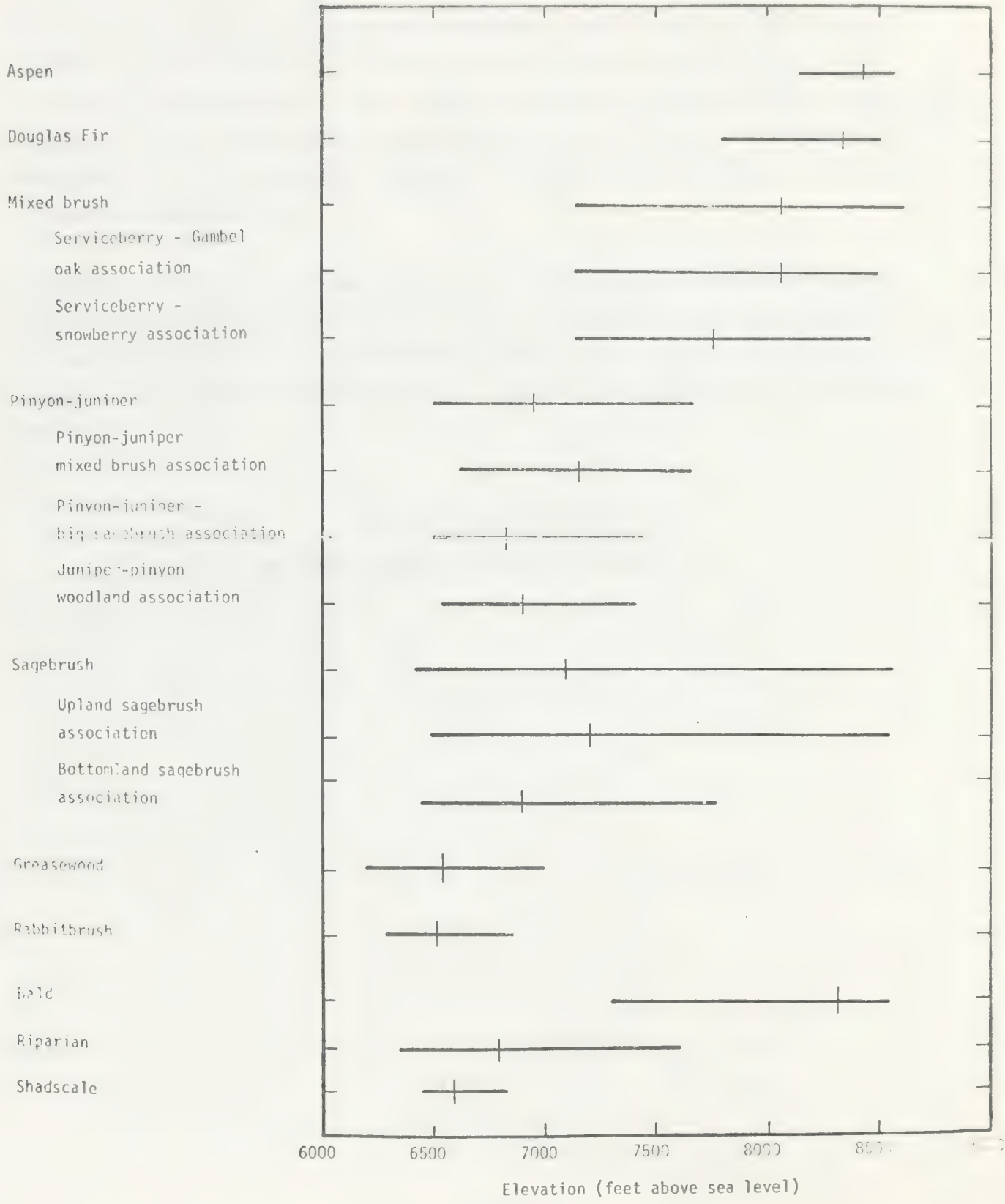


Figure 2.3-2 . Cover (m^2 per hectare) of the shrub stratum in transects sampled in the mixed brush type in relation to elevation, slope aspect, slope inclination, and association classification for RBOSP.

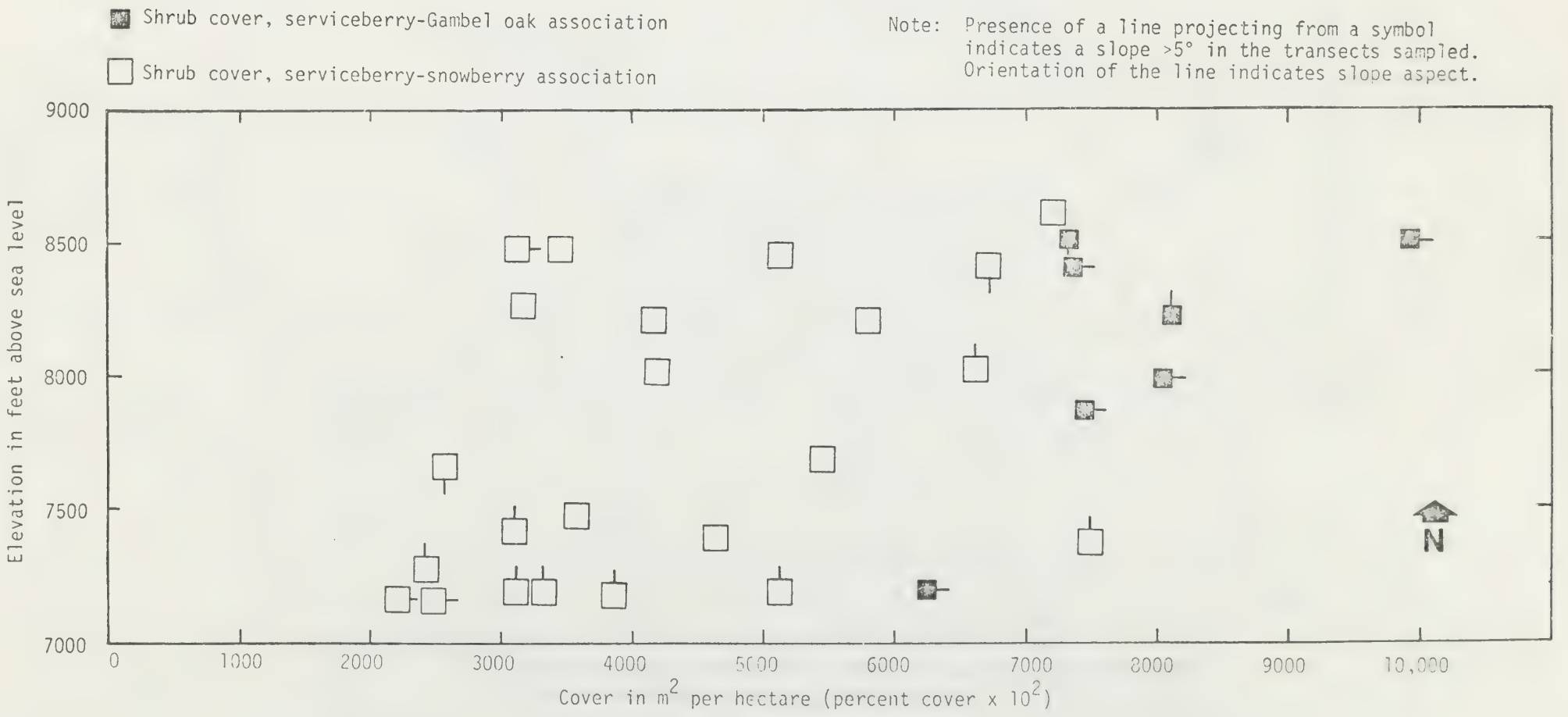
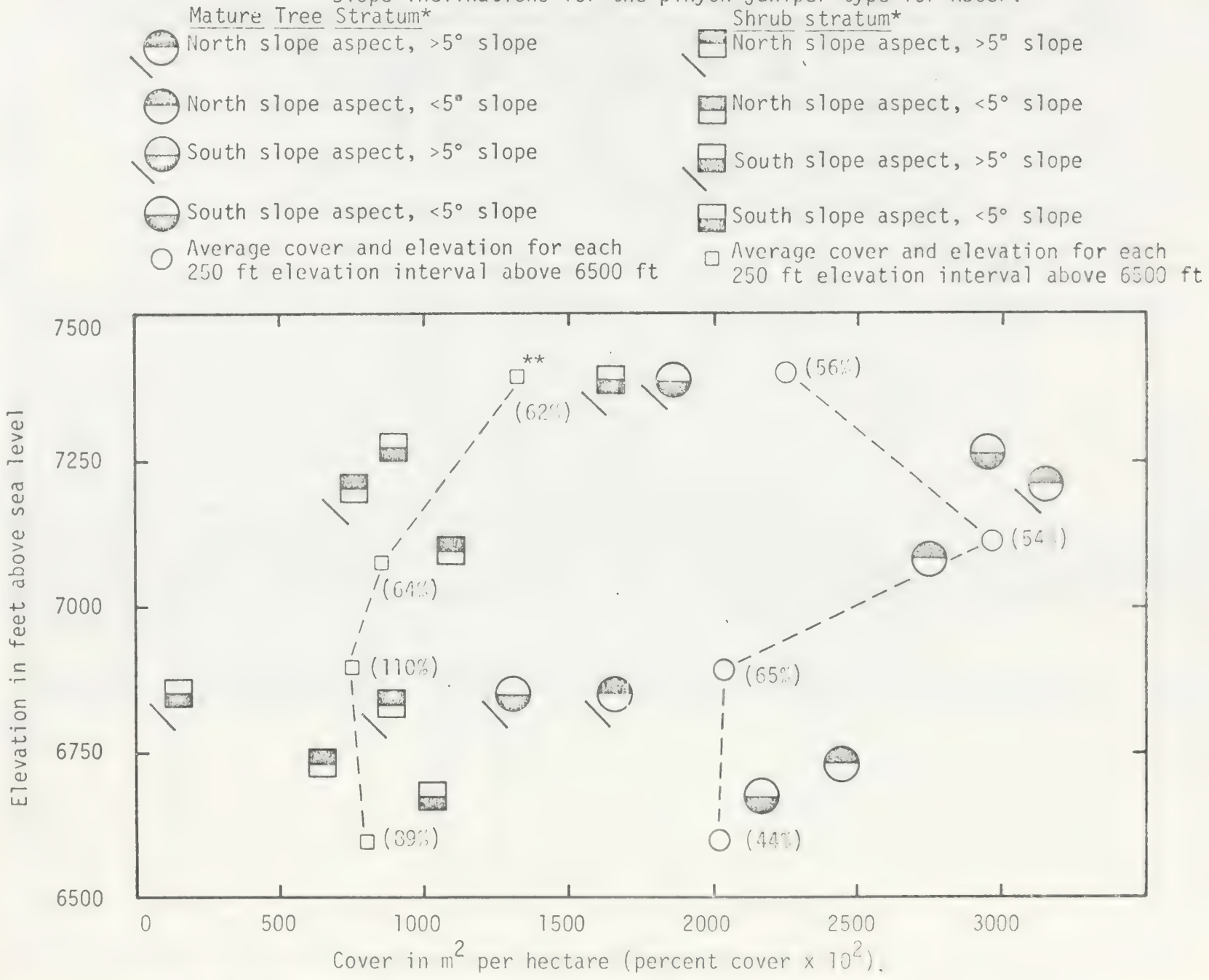


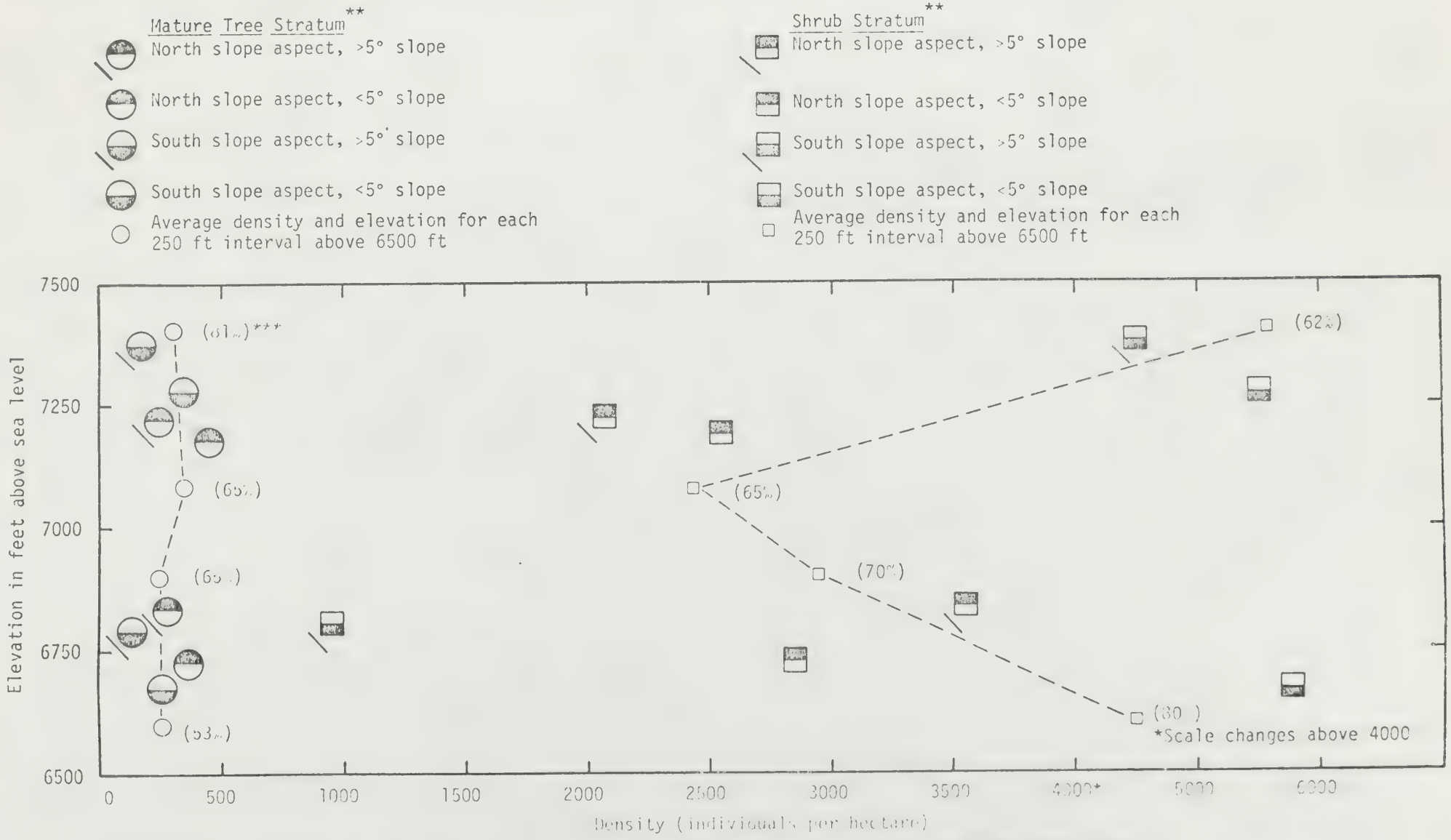
Figure 2.3-3 . Comparison of mature tree and shrub strata cover (m^2 per hectare) in transects sampled at different elevations, slope aspects, and slope inclinations for the pinyon-juniper type for RBOSP.



*Average cover for transects occurring within two 500 ft elevation intervals (6500-7000, 7000-75000).

**Standard deviation / mean × 100

Figure 2.3-4 . Comparison of mature tree and shrub strata densities (individuals per hectare) in transects sampled at different elevations, slope aspects, and slope inclinations for the pinyon-juniper type for RBOSP.



**Average density for transects occurring within two 500 ft elevation intervals (6500-7000, 7000-7500).

***Standard deviation

Figure 2.3-5 . Cover (m^2 per hectare) of the tree and shrub strata in transects sampled in the juniper-pinyon woodland association in relation to elevation, slope aspect, and slope inclination for RBOSP.

○ Tree cover

□ Shrub cover

Note: Presence of a line projecting from a symbol indicates a slope 5° in the transects sampled. Orientation of the line indicates slope aspect.

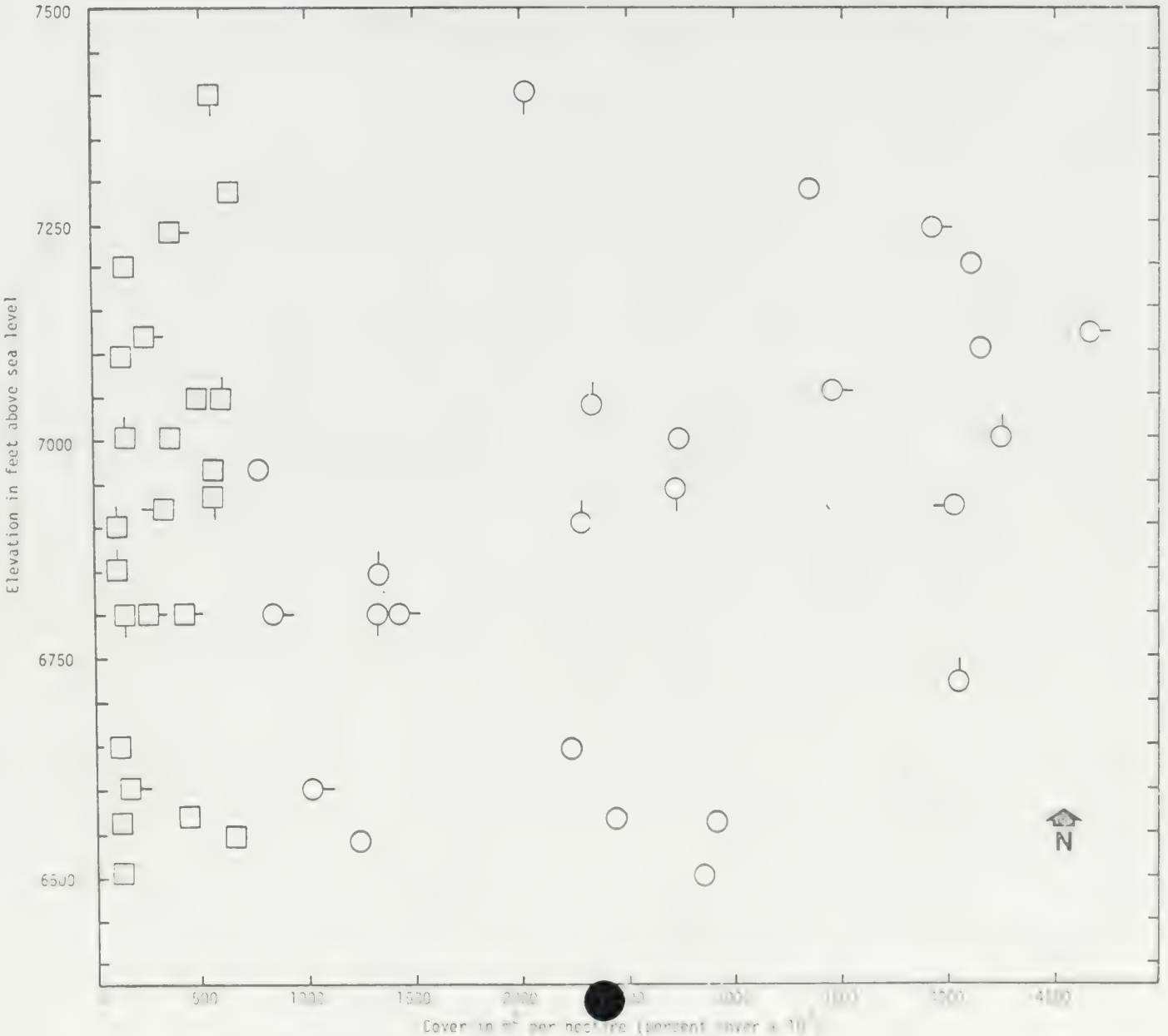


Figure 2.3-6. Cover (m^2 per hectare) of the tree and shrub strata in transects sampled in the pinyon-juniper-mixed brush association in relation to elevation, slope aspect, and slope inclination for RBOSP.

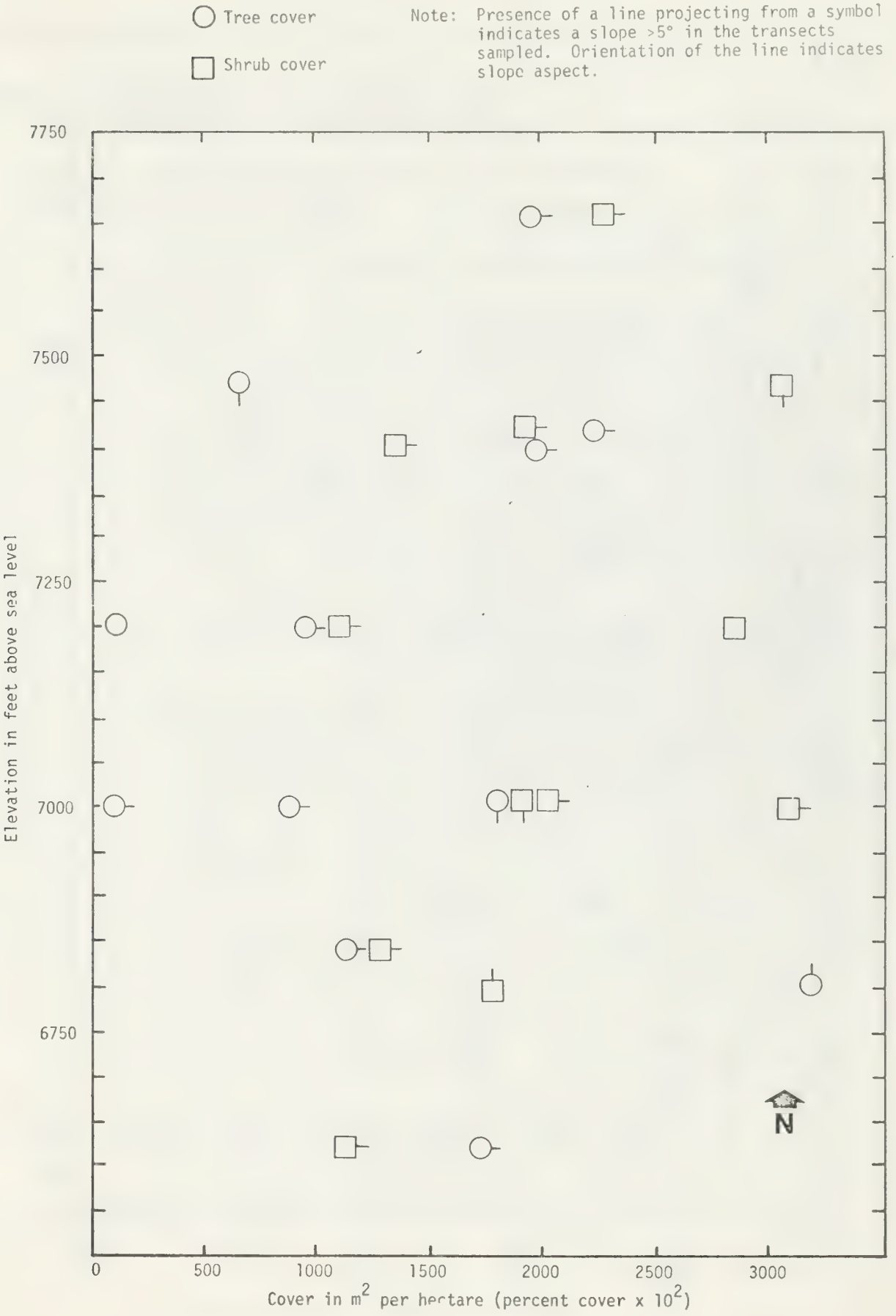


Figure 2.3-7 . Cover (m^2 per hectare) of the tree and shrub strata in transects sampled in the pinyon-juniper-sagebrush association in relation to elevation, slope aspect, and slope inclination for RBOSP.

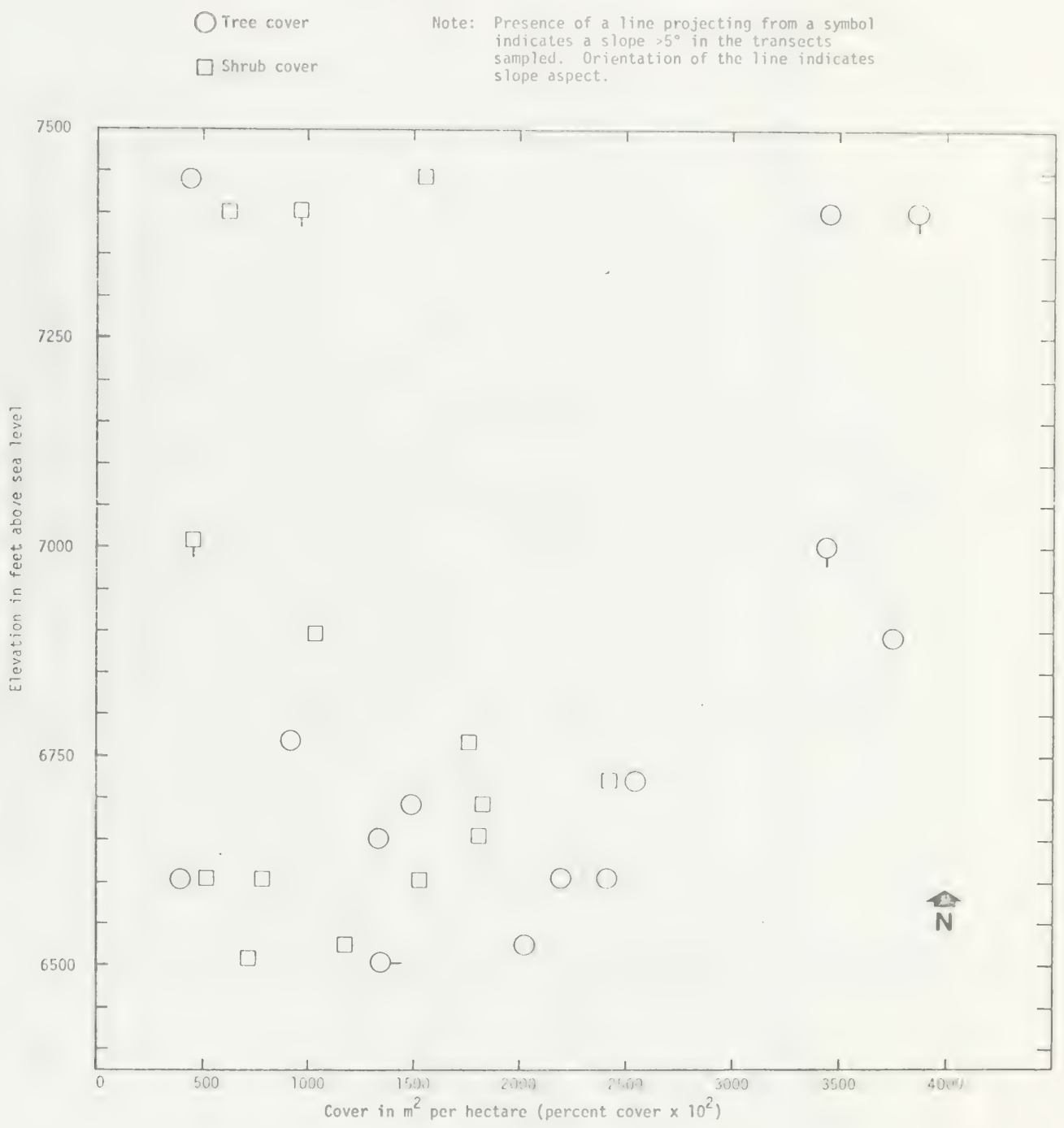


Figure 2.3-8 . Cover (m^2 per hectare) of the herbaceous and shrub strata for the upland sagebrush association in relation to elevation for RBOSP

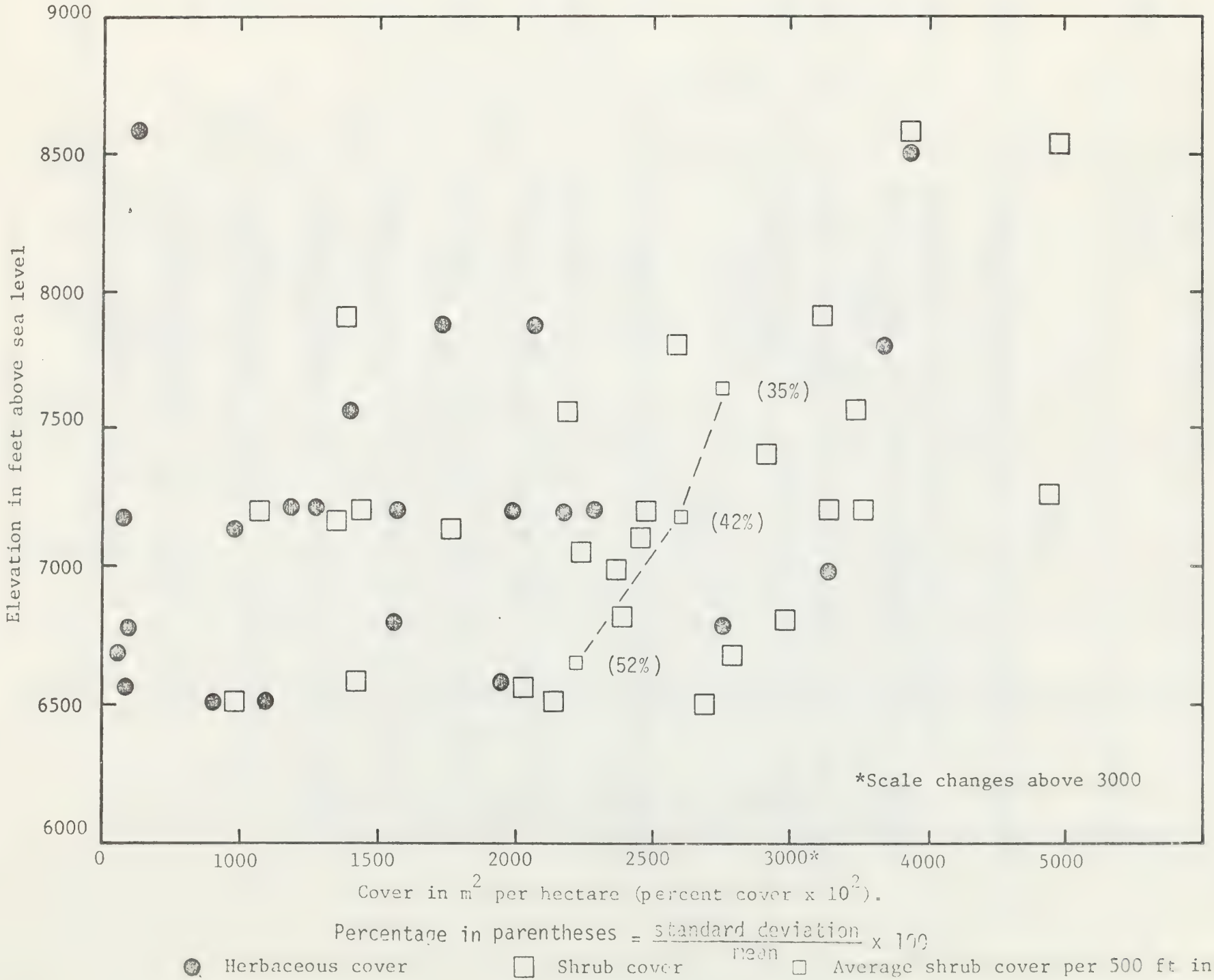


Figure 2.3-9 . Cover (m^2 per hectare) of the herbaceous and shrub strata for the bottomland sagebrush association in relation to elevation for RBOSP

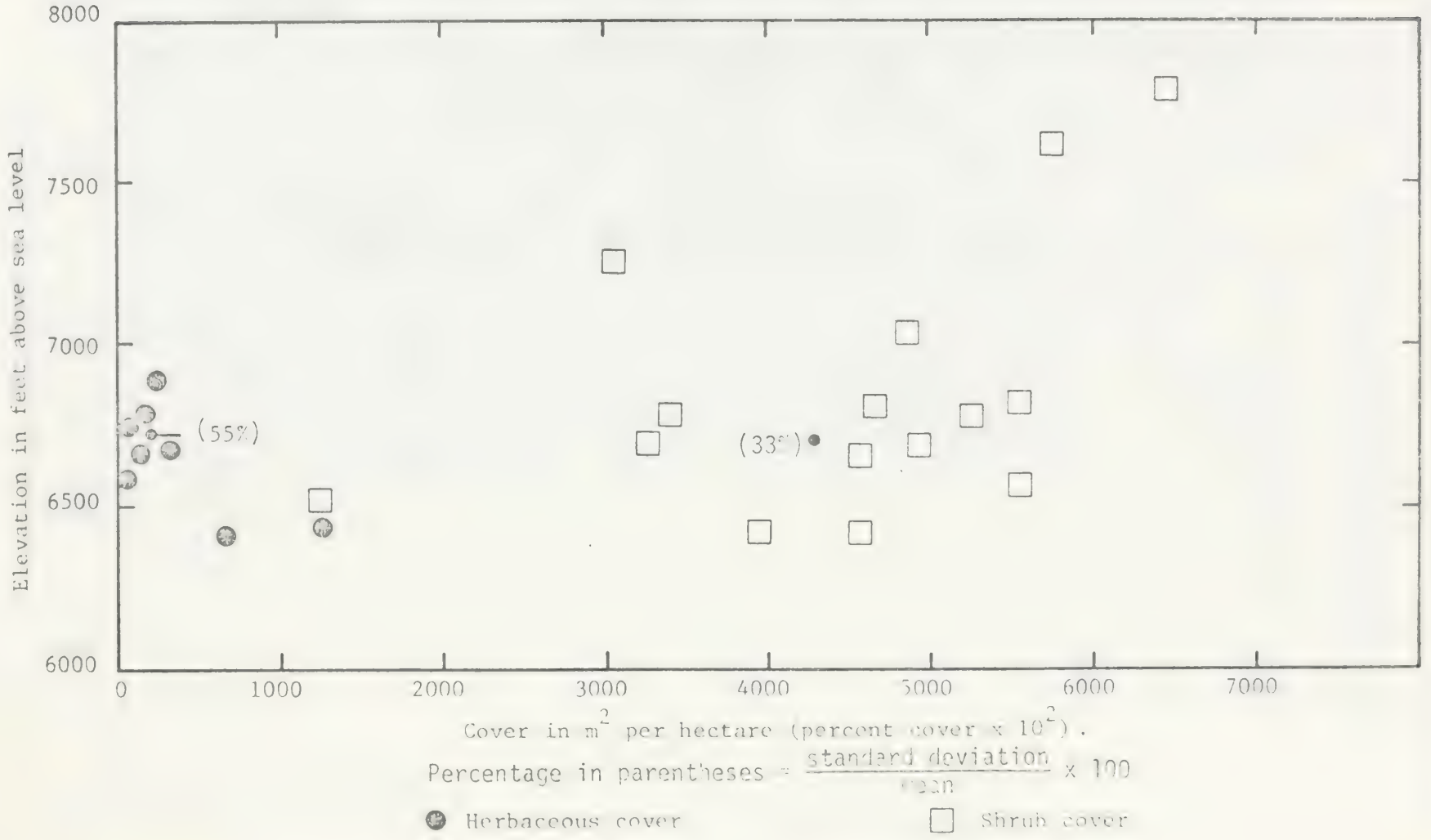


Table 2.3-1. Species of plants observed to date in the vicinity of Tract C-a for RBOSP*

Abbrev.	Species
	TREES
Juos[1/]	Juniperus osteosperma (Torr.) Little;[2/] (Pinaceae),[3/] Phan,[4/] Utah juniper, (V) [5/]
Pied	Pinus edulis Engelm.; (Pinaceae), Phan, pinyon pine
Poan	Populus angustifolia James; (Salicaceae), Phan, narrowleaf cottonwood, (V)
Potr	Populus tremuloides Michx.; (Salicaceae), Phan, quaking aspen
Psme	Pseudotsuga menziesii (Mirbel) Franco; (Pinaceae), Phan, Douglas fir
	SHRUBS
Acgl	Acer glabrum Torr.; (Aceraceae), Phan, Rocky Mountain maple, (V)
AMELA	Amelanchier sp.
Amal	Amelanchier alnifolia Nutt.; (Rosaceae), Phan, Saskatoon serviceberry, (V)
Amut	Amelanchier utahensis Koehne; (Rosaceae), Phan, Utah serviceberry, (V)
Arfr	Artemisia frigida Willd.; (Compositae), Cham, fringed sagebrush, (V)
Artr	Artemisia tridentata Nutt.; (Compositae), Phan, Cham, big sagebrush, (V)
Atca	Atriplex canescens (Pursh) Nutt.; (Chenopodiaceae) Cham, fourwing saltbrush, (V)
Atco	Atriplex confertifolia (Torr. & Fremont) S. Wats.; (Chenopodiaceae), Cham, shadscale, (V)
	Berberis repens; See Mahonia repens

* Footnotes listed at end of species list.

Table 2.3-1 (Continued)

Abbrev.	Species
	SHRUBS (Cont.)
Befo	Betula fontinalis Sarg.; (Betulaceae), Phan, water birch, (V)
	Betula occidentalis; See Betula fontinalis
Cema	Ceanothus martini M.E. Jones; (Rhamnaceae), Cham, Martin ceanothus, (V)
Cemo	Cercocarpus montanus Raf.; (Rosaceae), Phan, true mountain mahogany, (V)
CHRYS	Chrysothamnus sp.
Chde	Chrysothamnus depressus Nutt. (Compositae), Cham, dwarf rabbitbrush
Chna	Chrysothamnus nauseosus (Pall.) Britt, in Britt & Brown (Compositae), Phan, rubber rabbitbrusn, (V)
Chvi	Chrysothamnus viscidiflorus (Hook.) Nutt, (Compositae) Cham, Douglas rabbitbrush, (V)
	Cornus stolonifera; See Swida sericea
Epvi	Ephedra viridis Coville; (Ephedraceae), Cham, green ephedra
Eula	Eurotia lanata (Pursh) Moquin; (Chenopodiaceae), Cham, common winterfat, (V)
Gusa	Gutierrezia sarothrae (Pursh) Britt. & Rusby; (Compositae), Cham, broom snakeweed
Hodu	Holodiscus dumosus (Nutt.) Heller; (Rosaceae), Cham, bush ocean-spray, (V)
Mare	Mahonia repens (Lindl.) G. Don; (Berberidaceae), Cham, creeping barberry, (V)
Opfr	Opuntia fragilis (Nutt.) Haw.; (Cactaceae), Succ, brittle pricklypear
Oppo	Opuntia polyacantha Haw.; (Cactaceae), Succ, plains pricklypear

Table 2.3-1 (Continued)

Abbrev.	Species
	SHRUBS (Cont.)
Pamy	Pachystima myrsinites (Pursh) Raf.; (Celastraceae), Cham, myrtle pachystima, (V)
Puvim	Prunus virginiana var. melanocarpa (A. Nels.) Sarg.; (Rosaceae), Phan, black common chokecherry
Putr	Purshia tridentata (Pursh) D.C.; (Rosaceae), Cham, antelope bitterbrush, (V)
Quga	Quercus gambelii Nutt.; (Fagaceae), Phan, Gambel oak, (V)
RIBES	Ribes sp.
Riau	Ribes aureum Pursh; (Saxifragaceae), Cham, golden current, (V)
Rice	Ribes cereum Dougl.; (Saxifragaceae), Cham, wax current, (V)
Riin	Ribes inerme Rydb.; (Saxifragaceae), Cham, whitestem gooseberry, (V)
ROSA	Rosa sp.
Rowo	Rosa woodsii Lindl.; (Rosaceae), Cham, Wood's rose
Saex	Salix exigua Nutt.; (Salicaceae), Cham, willow, (V)
Sain	Salix interior Rowlee; (Salicaceae), Cham, willow, (V)
Saco	Sambucus coerulea Raf.; (Caprifoliaceae), Cham, blueberry elder, (V)
Save	Sarcobatus vermiculatus (Hook.) Torr.; (Chenopodiaceae), Cham, black greasewood, (V)
Sosc	Sorbus scopulina Greene; (Rosaceae), Cham, Greenes mountain-ash, (V)
Swse	Swida sericea (L.) Holub; (Cornaceae), Cham, redosier dogwood, (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	SHRUBS (Cont.)
Syor	Symphoricarpos oreophilus A. Gray; (Caprifoliaceae), Cham, mountain snowberry (V)
Teca	Tetradymia canescens D.C.; (Compositae), Cham, gray horsebrush, (V)
	HERBACEOUS (NON-GRASSLIKE)
Acla	Achillea lanulosa Nutt.; (Compositae) Hemi, western yarrow, (N) 6/ (V)
Agur	Agastache urticifolia Kuntze; (Labiatae), Hemi, nettleleaf giant-hyssop, (N) (V)
AGOSE	Agoseris sp.
Agau	Agoseris aurantiaca (Hook.) Greene; (Compositae) Hemi, orange agoseris, (N) (V)
Aggl	Agoseris glauca (Pursh) Raf.; (Compositae), Hemi, pale agoseris, (N) (V)
Alte 2	Allium textile Nels. & Macbr.; (Liliaceae), Cryp, textile onion, (N) (V)
AMBRO	Ambrosia sp. (L.); (Compositae) Ther, ragweed, (N)
Anse	Androsace septentrionalis L.; (Primulaceae), Ther, rock-jasmine, (N) (V)
ANGEL	Angelica sp.
Anam	Angelica ampla A. Nels; (Umbelliferae), Hemi, Angelica, (N) (V)
Anpi	Angelica pinnata S. Wats; (Umbelliferae), Hemi, small-leaf angelica, (N) (V)
ANTEN	Antennaria sp.
Anmi	Antennaria microphylla Rydb.; (Compositae), dioecious, Hemi, rose pussytoes (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Anpu	Antennaria pulcherrima (Hook.) Green; (Compositae), dioecious, Hemi, showy pussytoes, (N) (V)
Anro	Antennaria rosea Green; (Compositae), dioecious, Hemi, rose pussytoes (N) (V)
Aqba	Aquilegia barnebyi Munz; (Ranunculaceae), Hemi, columbine, (Rare--endemic to Green River shale deposits), (N) (V)
Aqca	Aquilegia caerulea James; (Ranunculaceae), Hemi, Colorado columbine, (Protected by Colorado State Law) (N) (V)
ARABI	Arabis sp.
Ardi 3	Arabis divaricarpa A. Nels.; (Cruciferae), Hemi, rockcress, (N) (V)
Ardr	Arabis drummondi A. Gray; (Cruciferae), Hemi, Drummond rockcress, (N) (V)
Arfe 4	Arabis fendleri (Wats.) Greene; (Cruciferae), Hemi, Fendler rockcress, (N) (V)
Arfes	Arabis fendleri var. spatifolia (Rydb.) Rollins; (Cruciferae), Hemi, rockcress, (N) (V)
ARENA	Arenaria sp.
Area	Arenaria eastwoodiae Rydb.; (Caryophyllaceae), Hemi, sandwort, (N) (V)
Arfe	Arenaria fendleri A. Gray; (Caryophyllaceae), Hemi, Fendler sandwort, (N) (V)
ARTEM	Artemisia sp.
Ardr	Artemisia dracunculus L.; (Compositae), Hemi, Tarragon, (N) (V)
Arlu	Artemisia ludoviciana Nutt.; (Compositae), Hemi, Louisiana sagebrush, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Ascr	Asclepias cryptoceras S. Wats.; (Asclepidaceae), Hemi, milkweed, (N) (V)
ASTER	Aster sp.
Asar 6	Aster arenosus Blake; (Compositae), Hemi, aster, (N) (V)
Asca 4	Aster campestris Nutt.; (Compositae), Hemi, aster, (N) (V)
ASTRA	Astragalus sp.
Asch	Astragalus chamaeleuce A. Gray; (Leguminosae), Hemi, milkvetch, (N) (V)
Asdi	Astragalus diversifolius A. Gray; (Leguminosae), Hemi, milkveich, (N) (V)
Aslu	Astragalus lutosus M.E. Jones; (Leguminosae), Hemi, milkvetch, (threatened and endangered--endemic to Green River shale deposits), (N) (V)
Aspu	Astragalus purshii Dougl. ex. Hook; (Leguminosae), Hemi, Pursh locoweed, (N) (V)
Assp 3	Astragalus spatulatus Sheld.; (Leguminosae), Hemi, tufted milkvetch, (N) (V)
Aste 3	Astragalus tenellus Pursh; (Leguminosae), Hemi, loose flower milkvetch, (N) (V)
Basa	Balsamorhiza sagittata (Pursh) Nutt.; (Compositae), Hemi, arrowleaf balsam root, (N) (V)
BORAG	Boraginaceae
CALOC	Calochortus sp.
Canu	Calochortus nuttallii Torr.; (Liliaceae), Cryp, segolily mariposa, (N) (V)
Cagu	Calochortus gunnisonii S. Wats.; (Liliaceae), Cryp, (N)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Cabu	Capsella bursa-pastoris (L.) Medic.; (Cruciferae), Ther, shepherds-purse, (I)
Cach 3	Castilleja chromosa A. Nels.; (Scrophulariaceae), Hemi, Indian paintbrush, (N) (V)
Cali	Castilleja linariaefolia Benth in D.C.; (Scrophulariaceae), Hemi, Wyoming painted cup (N) (V)
CHAEN	Chaenactis sp.
Chdo	Chaenactis douglasii (Hook) Hook & Arn.; (Compositae), Hemi, Douglas chaenactis, (N) (V)
CHENO	Chenopodium sp.
Chal	Chenopodium album L.; (Chenopodiaceae), Ther, lambsquarter goosefoot, (I) (V)
Chfr 2	Chenopodium fremontii S. Wats.; (Chenopodiaceae), Ther, Fremont goosefoot, (N) (V)
	Chenopodium gigantospermum; See Chenopodium hybridum
Chgi	Chenopodium hybridum (L.); (Chenopodiaceae), Ther, mapleleaf goosefoot, (origin uncertain), (V)
Chle	Chenopodium leptophyllum Nutt.; (Chenopodiaceae), Ther, slimleaf goosefoot, (N) (V)
Chte	Chorispora tenella D.C.; (Cruciferae), Ther, chorispora, (I) (V)
CIRSI	Cirsium sp.
Ciar 2	Cirsium arvense (L.) Scop.; (Compositae), Hemi, Canada thistle, (I) (V)
	Cirsium lanceolatum; See Cirsium vulgare

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Ciun	Cirsium undulatum (Nutt.) Spreng.; (Compositae), Hemi, wavyleaf thistle, (N) (V)
Civu	Cirsium vulgare (Savi) Tenore; (Compositae), Hemi, bull thistle, (I) (V)
Clco	Clematis columbiana (Nutt) T.& G.; (Ranunculaceae), Hemi, (N)
Clhi	Clematis hirsutissima Pursh; (Ranunculaceae), Hemi, Douglas clematis, (N) (V)
Clps	Clematis pseudoalpina (Kuntze) A. Nels. in Coult. & Nels; (Ranunculaceae), Hemi, (N) (V)
Copa 2	Collinsia parviflora Dougl. in Lindl.; (Scrophulariaceae), Ther, little flower collinsia, (N) (V)
Coli	Collomia linearis Nutt.; (Polemoniaceae), Ther, slenderleaf collomia, (N) (V)
Copa	Comandra umbellata ssp. pallida (A. DC.) Piehl; (Santalaceae), Hemi, bastard toadflax, (N) (V)
COMPO	Compositae
Coau	Corydalis aurea Willd.; (Fumariaceae), Ther, golden corydalis, (N) (V)
CREPI	Crepis sp.
Crac	Crepis acuminata Nutt.; (Compositae), Hemi, tapertip hawksbeard, (N) (V)
Croc	Crepis occidentalis Nutt.; (Compositae), Hemi, western hawksbeard, (N) (V)
CRUCI	Cruciferae
CRYPT	Cryptantha sp.

Table . 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Crse	Cryptantha sericea (A. Gray) Payson; (Boraginaceae), Hemi, (N) (V)
CYMOP	Cymopterus sp.
Cyac	Cymopterus acaulis (Pursh) Raf.; (Umbelliferae), Cryp, (N) (V)
Cyfe	Cymopterus fendleri A. Gray; (Umbelliferae), Cryp, Chimaya, (N) (V)
DELPH	Delphinium sp.
Dene	Delphinium nelsonii Green; (Ranunculaceae), Hemi, Menzies larkspur, (N) (V)
DESCU	Descurainia sp.
Depi	Descurainia pinnata (Walt.) Britt; (Cruciferae), Ther, pinnate tanseymustard, (N)
Deri	Descurainia richardsonii (Sweet) O.E. Schulz; (Cruciferae), Ther, Richardson tanseymustard, (N) (V)
Epad	Epilobium adenocaulon Hausskn.; (Onograceae), Hemi, sticky willowweed, (N) (V)
EQUIS	Equisetum sp.
Eqla	Equisetum laevigatum A. Br.; (Equisetaceae), Cryp, smooth horsetail, (N) (V)
ERIGE	Erigeron sp.
Erea	Erigeron eatonii A. Gray; (Compositae), Hemi, Eaton fleabane, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Erpu 2	Erigeron pumilus Nutt.; (Compositae), Hemi, low fleabane, (N) (V)
Ersp	Erigeron speciosus (Lindl.) DC.; (Compositae), Hemi, Oregon fleabane
ERIOG	Eriogonum sp.
Eral	Eriogonum alatum Torr.; (Polygonaceae), Hemi, wing eriogonum, (N) (V)
Ervi	Eriogonum densum Greene; (Polygonaceae), Hemi, broom eriogonum, (N) (V)
Erlo	Eriogonum lonchophyllum T. & G.; (Polygonaceae), Hemi, eriogonum, (N) (V)
Erov	Eriogonum ovalifolium Nutt.; (Polygonaceae), Hemi, cushion eriogonum, (N) (V)
Erum	Eriogonum umbellatum Nutt.; (Polygonaceae), Hemi, sulfur eriogonum, (N) (V)
Erar 6	Erysimum asperum (Nutt.) DC.; (Polygonaceae), Hemi, plains erysimum, (N) (V)
EUPHO	Euphorbia sp.
Eufe	Euphorbia fendleri T. & G.; (Euphorbiaceae), Hemi, Fendler euphorbia, (N) (V)
Euro	Euphorbia robusta (Engelm.) Small; (Euphorbiaceae), Hemi, robust euphorbia, (N) (V)
FRAGA	Fragaria sp.
Frsp	Frasera speciosa Douglas; (Gentianaceae), Hemi, showy frasera, (N) (V)
Frat	Fritillaria atropurpurea Nutt.; (Liliaceae), Cryp, purplespot fritillaria, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Gabo	Galium boreale L.; (Rubiaceae), Hemi, northern bedstraw, (N) (V)
Geri	Geranium richardsonii Fisch. & Trautv.; (Geraniaceae), Hemi, Richardson geranium, (N) (V)
	Gilia spp ; See Ipomopsis sp..
Gymu	Gymnolomia multiflora (Nutt.)Benth & Hook.; (Compositae), Hemi, showy goldeneye, (N) (V)
Hafl	Hackelia floribunda (Lehm.) Johnston; (Boraginaceae), Hemi stickseed, (N) (V)
HAPLO	Haplopappus sp.
Haac	Haplopappus acaulis (Nutt.) A. Gray; (Compositae), Hemi, stemless goldenweed, (N) (V)
Hanu	Haplopappus nuttallii T. & G.; (Compositae), Hemi, goldenweed, (N) (V)
HEDYS	Hedysarum sp.
Hebo	Hedysarum boreale Nutt.; (Leguminosae), Hemi, northern sweetvetch, (N) (V)
Heun	Helianthella uniflora (Nutt.) T.&G.; (Compositae), Hemi, oneflower helianthella, (N) (V)
Hela	Heracleum lanatum Michx.; (Umbelliferae), Hemi, common cowparsnip, (N) (V)
Hepa	Heuchera parviflora Nutt. ex. T. & G.; (Saxifragaceae), Hemi, littleleaf alumroot, (N) (V)
Hyfi	Hymenopappus filifolius Hook.; (Compositae), Hemi, fineleaf hymenopappus, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
HYMEN	Hymenoxys sp.
Hyac	Hymenoxys acaulis (Pursh) Parker; (Compositae), Hemi, stemless hymenoxys, (N) (V)
Ipag	Ipomopsis aggregata (Pursh) V. Grant; (Polemoniaceae), Hemi, skyrocket gilia, (N) (V)
Ipco	Ipomopsis congesta (Hook.) V. Grant; (Polemoniaceae), Hemi, ballhead gilia, (N) (V)
KOCHI	Kochia sp.
Koir	Kochia iranica Bornm.; (Chenopodiaceae), Ther, summer cypress (I)
	Kochia scoparia; See Kochia iranica
LACTU	Lactuca sp.
Lase	Lactuca serriola L.; (Compositae), Ther, prickly lettuce, (I)
LAPPU	Lappula sp.
Lare	Lappula redowskii (Hornem.) Greene; (Boraginaceae), Ther, annual stickseed, (N) (V)
LEPID	Lepidium sp.
Lemo	Lepidium montanum Nutt.; (Cruciferae), Hemi, pepperweed, (I) (V)
Lepe	Lepidium perfoliatum L.; (Cruciferae), Ther, clasping pepperweed, (I) (V)
Lepu	Leptodactylon pungens (Torr.) Rydb.; (Polemoniaceae), Hemi, (N) (V)
Lipo	Ligusticum porteri C.& R.; (Umbelliferae), Hemi, Porter ligusticum, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Liki	Linum kingii Wats. in King; (Linaceae), Hemi, flax, (N) (V)
Lile	Linum lewisii Pursh; (Linaceae), Hemi, Lewis flax, (N) (V)
LITHO	Lithospermum sp.
Liin	Lithospermum incisum Lehm.; (Boraginaceae), Hemi, gromwell, (N) (V)
Liru	Lithospermum ruderale Dougl. in Lehm.; (Boraginaceae), Hemi, (N) (V)
LOMAT	Lomatium sp.
Logr	Lomatium grayi C. & R.; (Umbelliferae), Cryp, desert parsley, (N) (V)
Loju	Lomatium juniperinum (M.E. Jones) C. & R.; (Umbelliferae), Cryp, desert parsley, (N) (V)
Loor	Lomatium orientale C.& R.; (Umbelliferae), Cryp, desert parsley, (N) (V)
LUPIN	Lupinus sp.
Luar	Lupinus argenteus Pursh; (Leguminosae), Hemi, silvery lupine, (N) (V)
Luca	Lupinus caudatus Kellogg; (leguminosae), Hemi, tailcup lupine, (N) (V)
Lyju	Lygodesmia juncea (Pursh) D. Don.; (Compositae), Hemi, rush skeletonplant, (N) (V)
MALVA	Malva sp.; (Malvaceae), Hemi, mallow (N)
Mear	Mentha arvense L.; (Labiateae), Hemi, field mint, (N) (V)
MENTZ	Mentzelia sp.
Meal 2	Mentzelia albicaulis Dougl. ex Hook.; (Loasaceae), Ther, whitestem mentzelia, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Memu 2	Mentzelia multicaulis (Osterhout) Goodman; (Loasaceae), Hemi, mentzelia, (N) (V)
Memu	Mentzelia multiflora (Nutt.) Gray; (Loasaceae), Hemi, desert mentzelia, (N) (V)
MERTE	Mertensia sp.
Meci	Mertensia ciliata (James) G. Don; (Broaginaceae), Hemi, mountain bluebells, (N) (V)
Mopa	Moldavica parviflora (Nutt.) Britton; (Labiateae), Ther, American dragonhead, (N) (V)
MOSS	Moss
Niat	Nicotiana attenuata Torr. ex. S. Wats.; (Solanaceae), Ther, Coyote tobacco, (N) (V)
Oeca	Oenothera caespitosa Nutt.; (Onograceae), Hemi, tufted evening-primrose
Oeco	Oenothera coronopifolia T. & G.; (Onograceae), Hemi, evening-primrose, (N) (V)
Oela	Oenothera lavandulaefolia T. & G.; (Onograceae), Hemi, lavenderleaf evening-primrose, (N) (V)
OSMOR	Osmorhiza sp.
Osde	Osmorhiza depauperata Phil.; (Umbelliferae), Hemi, sweetroot, (N) (V)
Oxla	Oxytropis lambertii var. bigelovii A. Gray; (Leguminosae), Hemi, Lambert crazyweed, (N) (V)
PENST	Penstemon sp.
Peca	Penstemon caespitosus Nutt. ex. A. Gray; (Scrophulariaceae), Hemi, mat penstemon, (N) (V)
Pefr	Penstemon fremontii T. & G.; (Scrophulariaceae), Hemi, beardtongue, (N) (V)
Peos	Penstemon osterhoutii Pennell; (Scrophulariaceae), Hemi, beardtongue, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Pest	Penstemon strictus Benth. in D.C.; (Scrophulariaceae), Hemi, Rocky Mountain penstemon, (N) (V)
Phse	Phacelia sericea (Graham) A. Gray; (Hydrophyllaceae), Hemi, silky phacelia, (N) (V)
PHLOX	Phlox sp.
Phho	Phlox hoodii Rich.; (Polemoniaceae), Hemi, Hoods phlox, (N) (V)
Phlo	Phlox longifolia Nutt.; (Polemoniaceae), Hemi, longleaf phlox, (N) (V)
Phmu	Phlox multiflora A. Nels.; (Polemoniaceae), Hemi, flowery phlox, (N) (V)
Phfl	Physaria floribunda Rydb.; (Cruciferae), Hemi, twinpod, (N) (V)
PLANT	Plantago sp.; (Plantaginaceae), Ther, plantain, (N)
Plpa	Plantago patagonica Jacq.; (Plantaginaceae), Ther, Patagonia Indianwheat, (N)
	Plantago purshii See Plantago patagonica
Posa 3	Polygonum sawatchense Small; (Polygonaceae), Ther, knotweed, (N) (V)
POTEN	Potentilla sp.
Pomo	Potentilla monspeliensis L.; (Rosaceae), Ther, cinquefoil, (origin uncertain) (V)
Popu	Potentilla pulcherrima Lehm.; (Rosaceae), Hemi, cinquefoil (N) (V)
Poqu	Potentilla quinquefolia Rydb.; (Rosaceae), Hemi, cinquefoil, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
Pyas	Pyrola asarifolia Michx.; (Ericaceae), Hemi, alpine pyrola, (N) (V)
RANUN	Ranunculus sp.
Racy	Ranunculus cymbalaria var. saximontanus Fernald; (Ranunculaceae), Hemi, Rocky Mountain buttercup, (N) (V)
Rasc 2	Ranunculus sceleratus L.; (Ranunculaceae), Hemi, blister buttercup, (N) (V)
RORIP	Rorippa sp.
Rona	Rorippa nasturtium-aquaticum (L.) Schniz & Thell.; (Cruciferae), Hemi, watercress, (I) (V)
Rucr	Rumex crispus L.; (Polygonaceae), Hemi, curlydock, (N) (V)
Ruut	Rumex utahensis Rech, f.; (Polygonaceae) Hemi, dock, (N) (V)
Saka	Salsola kali L.; (Chenopodiaceae), Ther, Russianthistle, (I) (V)
Scla	Scrophularia lanceolata Pursh,(Scrophulariaceae), Hemi lanceleaf figwort, (N) (V)
SENEC	Senecio sp.
Sein	Senecio integerrimus Nutt.; (Compositae), Hemi, lambstongue groundsel, (N) (V)
Semu 2	Senecio multilobatus T.& G. ex A. Gray; (Compositae), Hemi, lobeleaf groundsel, (N) (V)
Sesp	Senecio spartioides T&G(Compositae), Hemi, broom groundsel, (N) (V)
SISYM	Sisymbrium sp.
Sial	Sisymbrium altissimum L.; (Cruciferae), Ther, tumblemustard, (N) (V)
Sili	Sisymbrium linifolium Nutt. in T.& G.; (Cruciferae), Hemi, tumblemustard, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
SMILA	Smilacina sp.
Smra	Smilacina racemosa var. amplexicaulis (Nutt.) S. Wats.; (Liliaceae), Cryp, Solomon-plume, (N) (V)
Smst	Smilacina stellata (L.) Desf.; (Liliaceae), Cryp, Solomon-plume, (N) (V)
SOLID	Solidago sp; (Compositae), Hemi, goldenrod, (N) (V)
	Solidago ciliosa See: Solidago multiradiata var. scopulorum
Somu	Solidago multiradiata Ait. var. scopulorum A. Gray; (Compositae) Hemi, low goldenrod, (N) (V)
SPHAE	Spaheralcea sp.
Spco	Sphaeralcea coccinea (Pursh) Rydb.; (Malvaceae), Hemi, scarlet globemallow, (N) (V)
Stpi 2	Stanleya pinnata (Pursh) Britton; (Cruciferae), Hemi, desert princesplume, (N) (V)
Stwr	Stanleyella wrightii See: Thelypodium wrightii
Stco	Streptanthus cordatus Nutt. ex T.& G.; (Cruciferae), Hemi, heartleaf twistflower, (N) (V)
TARAX	Taraxacum sp.
Taof	Taraxacum officinale Web. in Wiggers; (Compositae), Hemi, common dandelion, (Distribution worldwide) (V)
Thfe	Thalictrum fendleri Engelm. ex A. Gray; (Ranunculaceae), Hemi, Fendler meadowrue, (N) (V)
Thwr	Thelypodium wrightii A. Gray; (Curciferae), Hemi or Ther, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON GRASSLIKE) (Cont.)
Thmo	Thermopsis montana Nutt. ex T.& G.; (Leguminoseae), Hemi, mountain thermopsis, (N) (V)
Toin	Townsendia incana Nutt.; (Compositae), Hemi, hoary townsendia, (N) (V)
TRIFO	Trifolium sp.
Trgy	Trifolium gymnocarpon Nutt.; (Leguminoseae), Hemi, hollyleaf clover, (N) (V)
UMBEL	Umbelliferae
Urdig	Urtica dioica ssp. gracilis (A.T.) Selander; (Labiatae), Hemi or Ther, big stinging nettle, (N)
Vaoc	Valeriana occidentalis Heller; (Valerianaceae), Hemi, western valerian, (N) (V)
Viam	Vicia americana Muehl. ex. Willd.; (Leguminoseae), Hemi American vetch, (N) (V)
	Viguiera multiflora See: Gymnolomia multiflora
Viad	Viola adunca Smith; (Violaceae), Hemi, Hook violet, (N) (V)
Vicar	Viola canadensis L. var. rugulosa (Greene) C.L. Hitchcock; (Violaceae), Hemi, Canada violet (N) (V)
Vinu	Viola nuttallii Pursh; (Violaceae), Hemi, Nuttall violet, (N) (V)
Vipa 2	Viola pallens (Banks) Brainerd; (Violaceae), Hemi, marsh violet, (N) (V)
	Viola palustris ssp. brevipes; See Viola pallens
	Viola rugulosa; See Viola canadensis var. rugulosa

Table 2.3-1 (Continued)

Abbrev.	Species
	HERBACEOUS (NON-GRASSLIKE) (Cont.)
WYETH	Wyethia sp. Nutt.; (Compositae), mule-ears
Zyveg	Zygadenus venenosus var. gramineus (Rydb.) Walsh ex M.E. Peck; (Liliaceae), Cryp, grassy deathcamas, (N) (V)
	GRASSES AND GRASS-LIKES
AGROP	Agropyron sp.
	Agropyron cristatum; See Agropyron desertorum
Agde 2	Agropyron desertorum (Risch.) Schult.; (Gramineae), Hemi, crested wheatgrass, (I) (N)
	Agropyron inerme; See Agropyron spicatum var. inerme
Agre 2	Agropyron repens (L.) Beauv.; (Gramineae), Hemi, quackgrass, (I) (V)
Agsm	Agropyron smithii Rydb.; (Gramineae), Bluestem wheatgrass, (N) (V)
Agspi	Agropyron spicatum (Pursh) Scribn. & Smith var. inerme Heller; (Gramineae), Hemi, beardless bluebunch wheatgrass, (N) (V)
Agsp	Agropyron spicatum (Pursh) Scribn. & Smith var. spicatum; (Gramineae), Hemi, bearded bluebunch wheatgrass, (N) (V)
Agsu	Agropyron subsecundum (Link) Hitchc.; (Gramineae), bearded wheatgrass, (N) (V)
Agtr	Agropyron trachycaulum (Link) Richt; (Gramineae), Hemi, slender wheatgrass, (N) (V)
ARIST	Aristida sp. L. Three awn, (N)
Bogr	Bouteloua gracilis (H.B.K.) Lag.; (Gramineae), Hemi, blue grama, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	GRASSES AND GRASS-LIKES (Cont.)
BROMU	Bromus sp.
	Bromus anomalus; See Bromus porteri
Brin	Bromus inermis Leyss; (Gramineae), Hemi, smooth brome, (I) (V)
Brma	Bromus marginatus Nees; (Gramineae), Hemi, big mountain brome, (N) (V)
Brpo	Bromus porteri, (Coult.) Nash; (Gramineae), Hemi, nodding brome, (N)
Brte	Bromus tectorum L.; (Gramineae), Ther, cheatgrass brome, (I) (V)
CAREX	Carex sp.
Cado	Carex douglasii Boot in Hook.; (Cyperaceae), Cryp, Douglas sedge, (N) (V)
Cage	Carex geyeri Boott; (Cyperaceae), Cryp, elk sedge, (N) (V)
Cala 2	Carex lanuginosa Michx.; (Cyperaceae), Cryp, wooly sedge, (N) (V)
Cane 2	Carex nebraskensis Dewey; (Cyperaceae), Cryp, Nebraska sedge, (N) (V)
Cave 2	Carex vernacula L.H. Bailey; (Cyperaceae), Cryp, sedge, (N) (V)
Dist	Distichlis stricta (Torr.) Rydb.; (Gramineae) Hemi, inland saltgrass, (N) (V)
Elma	Eleocharis macrostachya Britt.; (Cyperaceae), Cryp, common spikerush, (N) (V)
ELYMU	Elmus sp.
Elci	Elymus cinereus Scribn. & Merr.; (Gramineae), Hemi, great basin wildrye, (N) (V)
FESTU	Festuca sp.; (Gramineae), Hemi, fescue, (N)

Table 2.3-1 (Continued)

Abbrev.	Species
	GRASSES AND GRASS-LIKES (Cont.)
Glst	Glyceria striata (Lam.) Hitchcock; (Gramineae), Hemi, fowl mannagrass, (N) (V)
HORDE	Hordeum sp.
Hobr	Hordeum brachyantherum Nevski; (Gramineae), Hemi, meadow barley, (N) (V)
Hoju	Hordeum jubatum L.; (Gramineae), Hemi, foxtail barley, (N) (V)
JUNCU	Juncus sp.
Juara	Juncus articus spp. ater (Rydb.) Hulten; (Juncaceae), Cryp, wiregrass, (N) (V)
	Juncus balticus; See Juncus arcticus spp. ater
Jusa	Juncus saximontanus A. Nels.; (Juncaceae) Cryp, Rocky Mountain rush, (N) (V)
	Koeleria cristata; See Koeleria gracilis
Kogr	Koeleria gracilis Pers.; (Gramineae), Hemi, prairie junegrass
Mebu	Melica bulbosa Geyer; (Gramineae), Cryp, onion grass, (N)
Orhy	Oryzopsis hymenoides (R.& S.) Ricker; (Gramineae), Hemi, Indian ricegrass, (N) (V)
POA	Poa sp.
Poag	Poa agassizensis Boivin & D. Loeve; (Gramineae), Hemi, blue grass, (N) (V)
Poam	Poa ampla Merr.; (Gramineae), Hemi, big bluegrass, (N) (V)
Poca	Poa canbyi (Scribn.) Piper; (Gramineae), Hemi, Canby bluegrass, (N) (V)
Poco	Poa compressa L.; (Gramineae), Hemi, Canada bluegrass, (N) (N)
Pofe	Poa fendleriana (Steud.) Vasey; (Gramineae), Hemi, mutton bluegrass, (N) (V)

Table 2.3-1 (Continued)

Abbrev.	Species
	GRASSES AND GRASS-LIKES (Cont.)
	Poa interior; See Poa nemoralis var. interior
Ponei	Poa nemoralis L. var. interior (Rydb.) Butters & Abbe; (Gramineae), Hemi, interior bluegrass, (N) (V)
Popr	Poa pratensis L.; (Gramineae), Hemi, Kentucky bluegrass, (I) (V)
Posa	Poa sandbergii Vasey; (Gramineae), Hemi, Sandberg bluegrass, (N) (V)
	Poa secunda; See Poa sandbergii
Scac	Scirpus acutus Muehl. ex. Bigelow; (Cyperaceae), Cryp, tule bulrush, (N) (V)
	Sitanion hystrix; See Sitanion longifolium
Silo	Sitanion longifolium J.G. Smith; (Gramineae), Hemi, squirreltail, (N) (V)
Spai	Sporobolus airoides (Torr.) Torr.; (Gramineae), Hemi, alkali sacaton, (N) (V)
STIPA	Stipa sp.
Stco 2	Stipa columbiana Mocoun; (Gramineae), Hemi, subalpine needlegrass. (N) (V)
Stco	Stipa comata Trin. & Rupr.; (Gramineae), Hemi, needle-and-thread, (N) (V)
Stvi	Stipa viridula, Trin.; (Gramineae), Hemi, green needlegrass, (N)
Trma 3	Triglochin maritima L.; (Juncaginaceae), Cryp, shore podgrass, (N)
Tyla	Typha latifolia L.; (Typhaceae), Cryp, common cattail, (N)

Table 2.3-1 (Continued)

Abbrev.	Species

FOOTNOTES

1/ Abbreviation of genus and species in a four letter code (Plummer et al., 1966).

2/ Author citation, nomenclatural authority cited after each species name and delineated by a semicolon.

3/ The family of plants to which a species belongs in parenthesis.

4/ Lifeforms of Plants (Raunkiaer, 1934).

Phan (Phanerophyte) - Perennating bud at least 0.25 m above soil surface.

Cham (Chamaephyte) - Perennating bud between 0 and 0.25 m above soil surface.

Hemi (Hemicryptophyte) - Perennating bud in soil surface.

Cryp (Cryptophyte) - Perennating buds covered by soil or water.

Ther (Therophyte) - Annual plants, perennating buds contained in seed.

Succ (Succulent) - Stems enlarged; serve as water storage organ.

5/ (V) Voucher speciment collected.

6/ Origin of herbaceous species:

(N) - Native to the North American Continent.

(I) - Introduced from outside the North American Continent.

Table 2.6.2

THE RELATIVE [illegible] OF PLANT SPECIES [illegible] IN THE EAST C + STUDY AREA [illegible]

Species	Douglas Fir	Aspen	Upland Meadow	Mixed Brush Open/Mod	Mixed Brush [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Shadscale	Rabbitbrush	Greasewood	Riparian
TREE STRATUM														
Abgr	-	-	+	-	+	13	13	11	+	-	-	-	-	-
Pied	-	-	+	-	+	4	15	9	+	-	+	-	-	-
Potr	1	51	-	+	-	-	-	-	-	-	-	-	-	6
Psme	60	1	-	-	+	-	-	-	-	-	-	-	-	+
SHRUBS														
Acgl	2	4	-	-	-	-	-	-	-	-	-	-	-	-
Amal	7	19	-	+	-	-	-	-	-	-	-	-	-	-
Amut	12	14	3	39	26	8	+	+	4	+	-	-	-	1
Artr	-	-	1	-	-	-	+	-	-	-	+	-	-	-
Artr	+	+	+	8	8	7	+	7	21	31	7	-	10	9
Atca	-	-	-	-	-	-	-	-	-	+	+	2	-	+
Atco	-	-	-	-	-	+	+	-	-	+	4	-	+	+
Bere	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Cema	-	-	-	-	+	+	-	-	-	-	-	-	-	-
Ceve	+	-	+	+	2	1	1	+	+	-	-	-	-	-
Chde	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Chna	+	-	-	-	+	+	+	-	+	3	+	14	4	2
Chvi	+	-	+	+	1	+	+	1	1	3	+	21	+	+
Epvi	-	-	-	-	-	-	+	-	-	-	+	-	-	-
Eula	-	-	+	-	-	-	-	+	+	+	+	-	-	-
Gusa	-	-	1	-	+	+	+	+	+	-	-	-	-	+
Hedu	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Mare	+	-	+	+	-	-	-	-	-	-	-	-	-	-
Optr	-	-	-	-	-	+	-	+	-	-	-	-	-	-
Opfr	-	-	-	-	+	+	+	+	+	+	-	-	-	-
Pasy	+	+	-	-	-	-	-	-	-	-	-	-	-	+
Pevi	10	12	-	3	-	-	-	-	-	-	-	-	-	1
Potr	+	-	+	4	+	1	1	1	+	-	-	-	-	-
Quga	2	+	-	12	-	-	-	-	-	-	-	-	-	-
Rhau	-	-	-	-	-	-	-	-	-	-	-	+	-	2
Rico	-	-	-	-	-	-	-	-	-	+	-	-	-	+
Rita	2	1	-	+	+	-	-	-	-	-	-	-	-	1
Sasa	1	4	-	+	-	-	-	-	+	-	-	-	-	3
Saex	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Sain	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Saco	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Save	-	-	-	-	-	-	-	-	-	1	+	2	29	+
Sosc	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Swse	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Syor	11	3	+	13	12	1	+	+	2	-	+	+	-	3
Teca	-	-	+	+	+	+	+	+	+	5	+	-	-	-
FORBS														
Acla	1	+	+	+	-	-	-	-	+	-	-	-	-	+
Aggl	-	-	-	+	-	-	-	+	+	-	-	-	-	-
Anse	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Anam	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Anmi	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Anpu	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Aqca	+	1	-	-	-	-	-	-	-	-	-	-	-	-
Ardr	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Area	-	-	+	-	-	-	-	+	-	-	+	-	-	-
Arlu	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Asca	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Asch	-	-	+	+	-	-	-	-	+	-	-	-	-	-
Asdi	-	-	-	-	+	+	-	+	-	+	-	-	-	-
Aspu	-	-	+	-	-	-	+	-	+	-	-	-	-	-
Assp 3	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Aste 3	2	-	-	-	-	-	-	-	+	-	-	-	-	-
Basa	-	-	-	-	+	-	+	-	-	-	-	-	-	-
Canu	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Cach 3	-	-	+	-	-	-	-	-	+	-	-	-	-	-
Cali	-	-	+	-	-	+	-	-	+	-	-	-	-	-
Chdo	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Chal	-	-	-	-	-	-	-	-	-	-	-	-	6	+
Chfr 2	+	-	-	-	+	+	+	-	-	+	+	+	3	+
Chle	+	-	-	-	-	-	-	-	-	+	-	-	-	+
Ciar 2	+	-	-	-	-	-	-	-	-	-	-	-	-	+

Table 2.3-1
(CONTINUED)

Species	Douglas Fir	Aspen	Upland Meadow	Riparian Area (Mesquite/Acacia)	Riparian Area (Mesquite/Acacia/Cottonwood)	Riparian Area (Cottonwood/Willow)	Riparian Area (Willow/Sedge)	Riparian Area (Cattail/Bulrush)	Sagebrush (Artr/Arnova)	Sagebrush (Artr/Arnova/Grass)	Shadscale	Rabbitbrush	Greasewood	Rock
FORBS (CONTINUED)														
Clco	+	-	-	-	-	-	-	-	-	-	-	-	-	+
Clhi	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Coli	+	-	-	-	-	-	-	-	+	-	-	-	-	-
Copa	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Coum	-	-	+	+	-	-	-	-	+	-	-	-	-	-
Crac	-	-	-	+	+	-	+	-	+	-	-	-	-	-
Crse	-	-	+	+	+	+	+	+	+	+	+	-	-	-
Depi	-	-	-	-	-	-	-	-	-	-	+	+	+	+
Eras	-	-	-	-	+	-	-	-	+	-	-	-	-	-
Erea	-	-	+	-	+	-	+	-	+	-	-	-	-	-
Erpu 2	-	-	-	-	+	-	-	+	+	-	-	-	-	-
Ersp	+	-	-	-	-	-	-	-	+	-	-	-	-	-
Eral	-	-	+	-	-	-	-	-	-	+	-	-	-	-
Erlo	-	-	1	-	-	1	-	+	-	-	1	-	-	-
Erov	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Erum	-	-	-	+	2	-	+	-	1	-	-	-	-	-
Eufe	-	-	-	-	-	+	+	+	-	+	-	-	-	-
Euro	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Gefr	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Gabo	1	3	-	+	-	-	-	-	1	-	-	-	-	+
Geri	-	1	-	-	-	-	-	-	-	-	-	-	-	+
Hafl	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Haac	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Hanu	-	-	1	-	+	1	+	+	+	-	1	-	-	-
Hebo	-	-	1	-	+	-	-	-	1	-	-	-	-	-
Heun	+	+	-	-	-	-	-	-	+	-	-	-	-	-
Hepa	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Hyfi	-	-	1	-	-	-	-	+	-	-	-	-	-	-
Hyac	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Ipag	-	-	+	+	-	-	-	-	+	+	-	-	-	-
Ipco	-	-	-	-	-	-	-	+	+	-	-	-	-	-
Soir	-	-	-	-	-	-	-	-	-	+	-	-	9	+
[illegible]se	-	-	-	-	-	-	-	-	-	-	-	-	+	-
[illegible]ve	-	-	-	-	-	-	-	-	-	+	-	-	+	-
Lepe	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Lepu	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Lile	-	-	+	-	+	-	-	-	-	-	-	-	-	-
Liru	+	-	-	-	+	-	-	-	-	-	-	-	-	-
Luca	-	-	+	-	+	-	-	-	4	-	-	-	-	-
Lyju	-	-	-	-	-	+	-	-	-	-	-	-	-	-
Oeca	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Oela	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Osde	1	5	-	-	-	-	-	-	+	-	-	-	-	-
Oxla	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Peca	-	-	2	+	+	+	+	-	1	-	-	-	-	-
Pefr	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Phno	-	-	+	-	-	+	+	+	+	-	-	-	-	-
Phlo	-	-	+	+	+	-	-	+	+	-	-	-	+	-
Phmu	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Phfl	-	-	+	+	+	+	-	+	+	+	-	-	-	-
Posa	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Popu	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Racy	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Ruut	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Semu	-	-	-	-	-	-	+	-	-	+	-	-	-	-
Smst	+	1	-	-	-	-	-	-	-	-	-	-	-	+
Somus	1	2	-	-	-	-	-	-	-	-	-	-	-	+
Spco	-	-	+	-	+	+	+	1	1	-	+	-	-	-
Stco	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Taof	+	+	-	-	-	-	-	-	+	+	-	-	+	1
Thfe	3	1	-	-	-	-	-	-	-	-	-	-	-	-
Thmo	+	5	-	-	-	-	-	-	-	-	-	-	-	-
Trgy	-	-	+	-	-	+	-	+	1	-	-	-	-	-
Vaoc	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Viam	1	-	-	-	-	-	-	-	-	-	-	-	-	-
[illegible]ad	1	-	-	-	-	-	-	-	-	-	-	-	-	-
[illegible]ru	-	6	-	-	-	-	-	-	-	-	-	-	-	-
Yyveg	-	-	+	-	-	-	-	-	+	-	-	-	-	-

Table 2.3-2
(CONTINUED)

Species	Douglas Fir	Aspen	Upland Meadow	Mixed Brush Quga/Amut	Mixed Brush Amut/Syor	Pinyon-Juniper		Sagebrush		Shadscale	Rabbitbrush	Grassland	Pinyon
								Artr/Amut/Syor	Artr				
GRASSES AND GRASS-LIKES													
Agde 2	-	-	-	-	-	-	-	-	-	-	-	3	-
Agre2	-	-	-	-	-	-	-	-	-	-	-	-	14
Agsm	-	-	+	+	-	+	+	+	1	2	-	1	5	-
Agspi	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Agin	-	-	-	-	-	+	-	-	-	-	-	-	-	-
Agtr	+	-	2	+	1	1	+	1	-	+	-	-	+	-
Bogr	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Brin	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Brma	+	2	-	-	-	-	-	-	-	-	-	-	-	-
Brte	-	-	-	+	-	-	-	-	+	+	-	-	+	-
Cane	10	3	-	6	+	-	+	+	3	-	-	-	-	-
Cane	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Cave	-	2	-	-	-	-	-	-	-	-	-	-	-	1
Elci	-	-	-	-	+	-	-	-	-	2	-	37	+	7
Glst	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Hobr	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Hoju	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Jure	-	-	-	-	-	-	-	-	-	-	-	1	-	+
Jusa	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Poar	+	1	2	-	+	-	+	1	+	+	-	-	-	-
Orhy	-	-	-	1	1	+	1	1	1	+	+	-	-	-
Poan	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Pofe	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Popr	-	-	-	-	-	-	-	-	+	-	-	4	-	7
Posa	-	-	1	-	2	+	1	1	3	-	-	-	+	-
Scac	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Silo	-	-	-	-	-	+	-	+	-	1	+	-	-	-
Spai	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Stco 2	-	1	-	-	-	-	+	-	1	-	-	-	-	-
Stco	-	-	1	-	2	+	-	1	1	-	-	-	-	-

Table 2.3-3 Species encountered in the mature tree stratum in the aspen type for RBOSP

Species	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Basal Area m^2/ha
OCTOBER 1974 (SUMMARY OF 4 TRANSECTS)						
1. Populus tremuloides	33.04	93.75	100	3304	479	13.00
MAY-JUNE, JULY, SEPTEMBER 1975 (SUMMARY OF 5 TRANSECTS)						
1. Populus tremuloides	41.33	100.00	100	4133	623	21.08
2. Pseudotsuga menziesii	1.10	8.00	20	110	14	0.78
All Species	42.43			4243	637	21.86

Table 2.3-4 Percentage of individuals/ha by diameter class (cm) of tree species recorded on vegetation transects for RBOSP

Vegetation Type Species	Diameter Class (cm)*											
	0-7.6	7.6-16	16-24	24-32	32-40	40-48	48-56	56-64	64-72	72-80	80-88	>88
Douglas fir												
Pseudotsuga menziesii	67	12	11	6	3	1	< 1	0	< 1	0	0	0
Aspen												
Populus tremuloides	75	11	11	2	< 1	< 1	0	0	0	0	0	0
Pinyon-Juniper												
Juniperus osteosperma	29	11	13	10	10	11	5	4	3	< 1	2	2
Pinyon-Juniper												
Pinus edulis	75	8	7	4	2	1	1	< 1	1	< 1	0	0

*Measured dhb (diameter breast height,=1.4m) for Pseudotsuga menziesii and Populus tremuloides and below branching (=.4 m) for Juniperus osteosperma and Pinus edulis.

Table 2.3-5 Species encountered in the shrub-tree seedling stratum in the aspen vegetation type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative State (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology			Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
	May-June	July	September							
OCTOBER 1974 (SUMMARY OF 4 TRANSECTS)										
1. Symphoricarpos oreophilus	*	*	*	25.79	100.00	100	2579	5188	*	**
2. Populus tremuloides	*	*	*	14.62	93.75	100	1462	2063	*	**
3. Amelanchier sp.	*	*	*	13.56	87.50	100	1356	3243	*	**
4. Rosa woodsii	*	*	*	4.52	62.50	75	452	1764	*	**
5. Prunus virginiana	*	*	*	2.08	62.50	100	208	861	*	**
6. Quercus gambelii	*	*	*	0.63	18.75	25	63	83	*	**
7. Ribes sp.	*	*	*	0.40	25.00	50	40	500	*	**
8. Acer glabrum	*	*	*	0.21	6.25	25	21	23	*	**
9. Artemisia tridentata	*	*	*	0.17	12.50	25	17	43	*	**
All Species				61.98			6198	13779		
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 5 TRANSECTS)										
1. Amelanchier alnifolia	1,2	5	2	18.81	40.00	100	1881	1367	22.08	7176
2. Amelanchier utahensis	1,2	5	2	13.87	52.00	100	1387	150	*	**
3. Prunus virginiana	1,2	5	2	12.34	88.00	100	1234	2140	3.39	1159
4. Populus tremuloides	1,2	2	2	9.29	96.00	100	929	923	6.41	554
5. Acer glabrum	1,2	5	*	4.39	44.00	60	439	103	28.25	706
6. Rosa woodsii	1,2	4	2,6	3.79	96.00	100	379	4483	0.05	7
7. Symphoricarpos oreophilus	1,2	4	2,6	3.28	100.00	100	328	3853	0.92	461
8. Ribes sp.	1	*	*	1.37	36.00	40	137	197	.02	1
9. Ribes inerme	*	5	2	1.34	24.00	40	134	1773	*	**
10. Sorbus scopulina	*	4	*	1.11	12.00	20	111	23	*	**
11. Quercus gambelii	1	*	2	0.31	8.00	40	31	7	41.63	347
12. Pachystima myrsinites	*	*	2	0.21	20.00	20	21	623	*	**
13. Pseudotsuga menziesii	2	*	*	0.00	8.00	20	0	17	*	**
14. Artemisia tridentata	2	*	*	0.00	8.00	40	0	13	*	**
All Species				70.11			7011	15672		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-6 Species encountered in the herbaceous stratum in the aspen type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative state (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad	Sociability
OCTOBER 1974 (SUMMARY OF 4 TRANSECTS)							
1. Carex geyeri	*	22.81	95.00	100	2281	*	**
2. Bromus marginatus	*	1.58	31.50	50	158	*	**
3. Fragaria sp.	*	0.59	20.00	75	59	*	**
4. Aster sp.	*	0.59	10.50	25	59	*	**
5. Angelica sp.	*	0.47	15.00	50	47	*	**
6. Agropyron trachycaulum	*	0.44	5.00	25	44	*	**
7. Galium boreale	*	0.39	20.00	100	39	*	**
8. Stipa sp.	*	0.35	7.50	75	35	*	**
9. Thalictrum sp.	*	0.33	20.00	75	33	*	**
10. Agropyron spicatum	*	0.21	5.50	25	21	*	**
11. Pachystima myrsinites	*	0.13	5.00	25	18	*	**
12. Lagula sp.	*	0.12	5.00	25	12	*	**
13. Smilacina sp.	*	0.12	5.00	25	12	*	**
14. Eriogon sp.	*	0.10	2.50	25	10	*	**
15. Thermopsis montana	*	0.09	7.50	50	9	*	**
16. Aquilegia saxcuiea	*	0.06	5.00	25	6	*	**
17. Achillea lanulosa	*	0.07	10.00	75	7	*	**
18. Geranium richardsonii	*	0.06	7.50	25	6	*	**
19. Mertensia sp.	*	0.03	2.50	25	3	*	**
20. Sisyrinchium altissimum	*	0.02	2.50	25	2	*	**
21. Viola sp.	*	0.01	2.50	25	1	*	**
22. Unknown Compositae	*	0.10	5.00	50	10	*	**
23. Unknown Umbelliferae	*	0.16	7.50	25	16	*	**
All Species		29.03			2903		
MAY-JUNE 1975 (SUMMARY OF 2 TRANSECTS)							
1. Carex geyeri	2	2.60	80.00	100	260	*	**
2. Eriogonum sp.	1	0.40	10.00	50	40	*	**
3. Agropyron trachycaulum	1	0.20	10.00	50	20	*	**

Table 2.3-6 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			MAY-JUNE 1975 (SUMMARY OF 2 TRANSECTS) CONTINUED				
4. Bromus marginatus	2	0.20	35.00	50	20	*	**
5. Senecio sp.	2	0.10	10.00	50	10	*	**
6. Smilacina sp.	2	0.00	30.00	50	0	*	**
7. Valeriana occidentalis	2	0.00	15.00	50	0	*	**
8. Mertensia brevistyla	2	0.00	10.00	50	0	*	**
9. Viola palustris	3	0.00	10.00	50	0	*	**
10. Achillea lanulosa	2	0.00	10.00	50	0	*	**
11. Cirsium sp.	2	0.00	5.00	50	0	*	**
12. Cryptantha sericea	2	0.00	5.00	50	0	*	**
13. Potentilla pulcherrima	2	0.00	5.00	50	0	*	**
14. Thalictrum fendleri	2	0.00	5.00	50	0	*	**
15. Unknown	2	0.05	20.00	50	5	*	**
All Species		3.58			350		
			JULY 1975 (SUMMARY OF 2 TRANSECTS)				
1. Viola rugulosa	2	6.40	30.00	50	640	4.7	15.5
2. Thermopsis montana	2,3,5	5.45	55.00	100	545	4.4	7.9
3. Osmorhiza depauperata	4,5	5.40	60.00	50	540	5.4	11.9
4. Carex geyeri	2	3.35	50.00	100	335	*	**
5. Galium boreale	2,3	3.10	90.00	100	310	6.0	6.6
6. Solidago sp.	2	2.30	45.00	100	230	1.3	2.9
7. Valeriana occidentalis	2,3,4	2.25	35.00	100	225	1.9	5.4
8. Bromus marginatus	2,4	2.05	50.00	100	205	*	**
9. Carex vernacula	2,5	1.80	40.00	50	180	*	**
10. Aquilegia caerulea	4	1.50	10.00	100	150	0.8	7.5
11. Thalictrum fendleri	2,5	1.45	50.00	100	1.45	1.4	2.7
12. Smilacina stellata	2	1.25	30.00	100	125	0.7	2.2
13. Geranium richardsonii	4	1.20	25.00	100	120	0.7	2.6
14. Pachystima myrsinites	2	1.00	5.00	50	100	0.3	15.0
15. Potentilla pulcherrima	3	0.75	5.00	50	75	0.4	7.0

Table 2.3-6 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		JULY 1975 (SUMMARY OF 2 TRANSECTS) CONTINUED					
16. Stipa columbiana	2	0.55	25.00	50	55	*	**
17. Koeleria gracilis	2	0.55	15.00	50	55	*	**
18. Hackelia floribunda	2	0.50	10.00	50	50	2.1	20.5
19. Cirsium arvense	3	0.40	10.00	50	40	0.3	3.0
20. Achillea lanulosa	2	0.20	10.00	100	20	0.3	3.0
21. Taraxacum officinale	2	0.15	5.00	50	15	0.1	2.0
22. Chenopodium leptophyllum	2	0.10	5.00	50	10	0.7	14.0
23. Clematis columbiana	2	0.10	5.00	50	10	0.1	1.0
24. Collomia linearis	2	0.05	5.00	50	5	0.2	3.0
25. Helianthella uniflora	2	0.05	5.00	50	5	0.1	1.0
All Species		41.90			4190		
		SEPTEMBER 1975 (SUMMARY OF 2 TRANSECTS)					
1. Carex geyeri	2	6.30	90.00	100	630	*	**
2. Thermopsis montana	2,6	3.90	55.00	100	390	3.5	6.4
3. Viola pallens	2	2.70	15.00	50	270	3.5	23.3
4. Bromus marginatus	6	2.20	45.00	100	220	*	**
5. Valeriana occidentalis	2	1.60	40.00	100	160	1.8	4.5
6. Galium boreale	2	1.55	30.00	100	155	5.1	6.3
7. Osmorhiza depauperata	2	1.45	30.00	100	145	4.9	6.1
8. Clematis columbiana	2	0.75	15.00	50	75	0.1	0.7
9. Solidago multiradiata	6	0.65	10.00	50	65	0.4	3.5
10. Thalictrum fendleri	2,6	0.60	35.00	100	60	0.9	2.6
11. Helianthella uniflora	2,1	0.60	10.00	100	60	1.5	14.5
12. Geranium richardsonii	2	0.55	30.00	100	55	0.3	1.0
13. Smilacina stellata	2	0.55	20.00	100	55	0.5	2.3
14. Stipa columbiana	6	0.55	15.00	50	55	*	**
15. Potentilla pulcherrima	2	0.45	10.00	50	45	0.3	2.5
16. Viola nuttallii	2	0.40	15.00	50	40	1.2	8.0
17. Cirsium arvense	1	0.25	15.00	50	25	0.4	2.3

Table 2.3-6 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		SEPTEMBER 1975 (SUMMARY OF 2 TRANSECTS)					
18. Aquilegia caerulea	2	0.20	5.00	50	20	0.1	1.0
19. Achillea lanulosa	2	0.10	15.00	50	10	0.3	2.0
20. Erigeron speciosus	6	0.10	10.00	50	10	0.2	1.5
21. Chenopodium leptophyllum	6	0.05	5.00	50	5	0.2	4.0
22. Taraxacum officinale	2	0.05	5.00	50	5	0.5	3.0
All Species		25.55			2555		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-7 Species encountered in the mature tree stratum in the Douglas fir type for RBOSP

Species	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Basal Area m^2/ha
OCTOBER 1974 (SUMMARY OF 6 TRANSECTS)						
1. Pseudotsuga menziesii	70.74	95.83	100	7074	514	23.00
2. Populus tremuloides	0.00	4.17	16	0	5	0.06
All Species	70.74			7074	519	23.00
MAY-JUNE, JULY, SEPTEMBER 1975 (SUMMARY OF 5 TRANSECTS)						
1. Pseudotsuga menziesii	53.77	100.00	100	5377	467	30.80
2. Populus tremuloides	0.60	4.00	20	60	3	0.52
All Species	54.37			5437	470	31.32

Table 2.3-8 Species encountered in the shrub-tree seedling stratum in the Douglas fir type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative State (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
OCTOBER 1974 (SUMMARY OF 6 TRANSECTS)										
1. Amelanchier sp.	*	*	*	19.59	95.83	100	1969	4555	*	**
2. Symphoricarpos oreophilus	*	*	*	10.78	87.50	100	1076	5144	*	**
3. Prunus virginiana	*	*	*	4.17	20.83	33	417	791	*	**
4. Pseudotsuga menziesii	*	*	*	3.17	87.50	100	317	486	*	**
5. Artemisia tridentata	*	*	*	0.51	12.50	17	51	139	*	**
6. Rosa woodsii	*	*	*	0.49	33.33	67	49	481	*	**
7. Quercus gambelii	*	*	*	0.40	12.50	17	40	324	*	**
8. Populus tremuloides	*	*	*	0.25	8.33	33	25	23	*	**
9. Acer glabrum	*	*	*	0.09	4.17	17	9	23	*	**
All Species				39.35			3935	12134		
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 5 TRANSECTS)										
1. Amelanchier utahensis	1	5	*	12.49	72.00	80	1249	1047	468	265,356
2. Symphoricarpos oreophilus	1	4	2, 7	10.98	100.00	100	1098	4597	.1	408
3. Prunus virginiana	1, 2	*	2	10.15	56.00	60	1015	1017	5	2,946
4. Pseudotsuga menziesii	2	2	2	7.87	100.00	100	787	1607	22	47,784
5. Amelanchier alnifolia	*	5	2, 7	6.75	24.00	40	675	310	*	**
6. Quercus gambelii	1	5	2	2.18	32.00	60	218	690	98	44,968
7. Ribes inerme	*	*	2	1.71	20.00	20	171	620	*	**
8. Acer glabrum	1	*	*	1.57	20.00	40	157	97	644	95,616
9. Rosa woodsii	1	4	2, 7	0.83	60.00	100	83	813	*	**
10. Pachystima myrsinites	*	*	2	0.49	4.00	20	49	1170	*	**
11. Ribes cereum	*	5	*	0.42	20.00	20	42	70	*	**
12. Purshia tridentata	*	*	2	0.34	4.00	20	34	10	*	**
13. Chrysothamnus nauseosus	*	3	*	0.07	4.00	20	7	3	*	**
14. Helianthus sp.	*	4	*	0.06	12.00	20	6	58	*	**
15. Mahonia repens	*	*	2	0.01	8.00	20	1	94	*	**
16. Sambucus coerulea	*	4, 6	*	0.00	8.00	20	0	3	*	**
17. Cercocarpus montanus	*	5	*	0.00	8.00	20	0	10	*	**
18. Artemisia tridentata	2	*	*	0.00	0.00	00	0	13	*	**
All Species				55.11			5577	12253		

Table 2.3-9 Species encountered in the herbaceous stratum in the Douglas fir type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative State (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			OCTOBER 1974 (SUMMARY OF 6 TRANSECTS)				
1. Carex geyeri	*	18.69	90.00	100	1869	*	**
2. Pachystima myrsinites	*	0.80	15.00	83	80	*	**
3. Galium boreale	*	0.53	25.00	83	53	*	**
4. Aster sp.	*	0.49	13.00	33	49	*	**
5. Theropsis montana	*	0.15	3.33	17	15	*	**
6. Erigeron sp.	*	0.08	3.33	33	0	*	**
7. Smilacina sp.	*	0.08	1.67	17	8	*	**
8. Bromus marginatus	*	0.06	5.00	17	6	*	**
9. Astragalus sp.	*	0.06	6.67	17	6	*	**
10. Agropyron smithii	*	0.04	3.33	17	4	*	**
11. Poa sp.	*	0.03	3.33	33	3	*	**
12. Achillea lanulosa	*	0.03	1.67	17	3	*	**
13. Thalictrum fendleri	*	0.03	1.67	17	3	*	**
14. Angelica sp.	*	0.01	1.67	17	1	*	**
15. Mahonia repens	*	0.01	1.67	17	1	*	**
16. Unknown Compositae	*	0.36	6.67	33	36	*	**
All Species		21.45			2145		
			MAY-JUNE 1975 (SUMMARY OF 2 TRANSECTS)				
1. Carex geyeri	2	7.08	85.00	100	708	*	**
2. Pachystima myrsinites	2	1.30	35.00	50	130	*	**
3. Mahonia repens	2	0.15	10.00	100	15	*	**
4. Achillea lanulosa	2	0.00	5.00	50	0	*	**
5. Astragalus sp.	2	0.00	5.00	50	0	*	**
6. Bromus sp.	2	0.00	5.00	50	0	*	**
7. Carex sp.	2	0.00	5.00	50	0	*	**
8. Lithospermum ruderale	1	0.00	5.00	50	0	*	**
9. Viola sp.	2	0.00	5.00	50	0	*	**
All Species		8.53			853		

Table 2.3-9 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		JULY 1975 (SUMMARY OF 2 TRANSECTS)					
1. Carex geyeri	2	10.35	95.00	100	1035	*	**
2. Thalictrum fendleri	2	3.20	20.00	100	320	3.0	14.8
3. Astragalus tenellus	2	1.80	30.00	50	180	1.2	4.0
4. Osmorhiza depauperata	2	1.10	20.00	50	110	1.1	5.5
5. Vicia americana	7	1.10	20.00	50	110	1.0	5.0
6. Solidago sp.	2	1.10	10.00	50	110	1.2	12.0
7. Galium boreale	2	0.70	35.00	100	70	1.7	4.9
8. Achillea lanulosa	2	0.55	10.00	100	55	0.7	7.0
9. Aquilegia caerulea	3	0.50	5.00	50	50	0.2	3.0
10. Viola adunca	2	0.45	25.00	50	45	0.5	1.8
11. Stipa columbiana	5	0.30	10.00	50	30	*	**
12. Chenopodium fremontii	2	0.30	5.00	50	30	0.5	10.00
13. Erigeron speciosus	2	0.20	15.00	50	20	0.2	1.3
14. Lithospermum ruderale	6	0.20	5.00	50	20	0.1	2.0
15. Smilacina stellata	5	0.20	5.00	50	20	0.1	1.0
16. Agropyron trachycaulum	4	0.15	5.00	50	15	*	1.0
17. Helianthella uniflora	2	0.10	5.00	50	10	0.2	**
18. Mahonia repens	2	0.10	5.00	50	10	0.1	3.0
19. Thermopsis montana	2	0.10	5.00	50	10	0.1	1.0
20. Bromus marginatus	4	0.05	10.00	50	5	*	**
21. Crepis acuminata	2	0.05	5.00	50	5	0.1	1.0
22. Koeleria gracilis	2	0.05	5.00	50	5	*	**
23. Taraxacum officinale	2	0.05	5.00	50	5	0.1	3.0
All Species		22.70			2270		
		SEPTEMBER 1975 (SUMMARY OF 2 TRANSECTS)					
1. Carex geyeri	2	9.55	95.00	100	955	*	**
2. Thalictrum fendleri	2	1.40	20.00	100	140	2.0	9.8
3. Erigeron speciosus	2	0.90	20.00	100	90	1.6	7.8
4. Astragalus tenellus	2	0.70	30.00	50	70	0.9	2.8
5. Galium boreale	2	0.30	15.00	100	30	1.4	9.3
6. Lithospermum ruderale	2	0.30	5.00	50	30	0.1	1.0
7. Osmorhiza depauperata	2	0.25	10.00	50	25	0.5	4.5
8. Agropyron trachycaulum	2	0.20	15.00	50	20	*	**

Table 2.3-9 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/na	Density #/Quad.	Sociability
			SEPTEMBER 1975 (SUMMARY OF 2 TRANSECTS) CONTINUED				
9. Achillea lanulosa	2	0.15	10.00	100	15	0.5	5.0
10. Viola nuttallii	2	0.15	10.00	50	15	0.4	3.5
11. Viola pallens	2	0.15	10.00	50	15	0.2	2.0
12. Vicia americana	2	0.15	5.00	50	15	0.2	3.0
13. Bromus marginatus	2	0.10	10.00	50	10	*	**
14. Smilacina stellata	7	0.10	5.00	50	10	0.1	1.0
15. Stipa comata	7	0.05	5.00	50	5	*	**
16. Aquilegia caerulea	8	0.05	5.00	50	5	0.1	1.0
17. Viola sp.	2	0.05	5.00	50	5	0.1	2.0
18. Stipa columbiana	2	0.00	5.00	50	0	*	**
All Species		14.55			1455		

* Value not recorded in the field because of sampling procedure or absence of species.

** Value cannot be calculated because of absence of data.

Table 2.3-10 Species encountered in the mature tree stratum in the mixed brush type for RBOSP.

Species	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Basal Area m^2/ha
MAY-JUNE, JULY, SEPTEMBER 1975 (SUMMARY OF 17 TRANSECTS)						
1. Pinus edulis	0.10	2.35	12	10	2	0.03

Table 2.3-11 Species encountered in the shrub-tree seedling stratum in the mixed brush type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative State (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
OCTOBER 1974 (SUMMARY OF 13 TRANSECTS)										
1. Amelanchier utahensis	*	*	*	16.72	100.00	100	1672	4391	*	**
2. Artemisia tridentata	*	*	*	12.60	94.03	100	1260	5782	*	**
3. Symphoricarpos oreophilus	*	*	*	7.26	98.06	100	726	4637	*	**
4. Quercus gambelii	*	*	*	2.09	11.54	15	209	312	*	**
5. Chrysothamnus viscidiflorus	*	*	*	0.77	67.31	77	77	1100	*	**
6. Purshia tridentata	*	*	*	3.56	34.02	54	56	340	*	**
7. Cercocarpus montanus	*	*	*	0.47	15.38	31	47	147	*	**
8. Pinus edulis	*	*	*	0.04	32.69	46	4	49	*	**
9. Chrysothamnus nauseosus	*	*	*	0.03	11.54	15	3	24	*	**
10. Juniperus osteosperma	*	*	*	0.00	17.31	38	0	26	*	**
11. Tetradymia canescens	*	*	*	0.00	7.69	15	0	17	*	**
12. Pseudotsuga menziesii	*	*	*	0.00	1.92	8	0	4	*	**
All Species				40.56			4056	16824		
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 17 TRANSECTS)										
1. Amelanchier utahensis	2,3,4	5	2	30.36	97.65	100	3036	2902	235.92	86503
2. Symphoricarpos oreophilus	1,2	4	2	12.24	96.47	100	1224	4100	2.31	569
3. Artemisia tridentata	2	3	5,6	7.04	91.00	91	704	3663	0.19	92
4. Quercus gambelii	1,2	5	6	4.16	18.82	29	416	279	135.90	8507
5. Purshia tricntata	2	*	2	1.63	34.12	47	163	403	.42	23
6. Prunus virginiana	2,3	5	*	1.12	15.29	23	112	106	.01	0
7. Chrysothamnus viscidiflorus	2	2,3	6	.46	55.29	82	46	1017	.00	0
8. Tetradymia canescens	2	*	2	.13	17.65	31	13	417	.00	0
9. [illegible]	*	1	*	1	5.31	7	1	*	*	**
10. Pinus edulis	*	*	*	.10	16.47	31	10	83	2.18	27
11. Chrysothamnus nauseosus	2	3	*	.[illegible]	3.76	7	[illegible]	24	.00	0
12. [illegible]	*	*	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	*	**
13. Juniperus osteosperma	*	*	2	.[illegible]	[illegible]	[illegible]	0	0	[illegible]	*
14. [illegible]	1,3	*	*	0	[illegible]	[illegible]	0	70	[illegible]	0
15. Opuntia polyacantha	*	*	0	.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	*	*

Table 2.3-11 (Continued)

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
	MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 17 TRANSECTS) (CONTINUED)									
16. Ribes inerme	*	5,6	*	.00	3.53	18	0	5	*	**
17. Populus tremuloides	*	2	*	.00	2.35	6	0	4	*	**
18. Amelanchier alnifolia	*	5	*	.00	1.18	6	0	11	*	**
19. Cercocarpus montanus	*	5	*	.00	1.18	6	0	1	*	**
20. Pseudotsuga menziesii	*	*	*	.00	1.18	6	0	1		
All Species				58.25			5825	13116		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-12 Species encountered in the herbaceous stratum in the mixed brush for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative state (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			OCTOBER 1974 (SUMMARY OF 13 TRANSECTS)				
1. Carex geyeri	*	8.79	33.08	62	879	*	**
2. Poa sandbergii	*	2.64	21.54	54	264	*	**
3. Poa sp.	*	2.13	27.69	54	213	*	**
4. Eriogonum sp.	*	1.08	16.15	31	108	*	**
5. Agropyron trachycaulum	*	0.91	20.77	54	91	*	**
6. Lupinus sp.	*	0.83	15.38	46	83	*	**
7. Phlox hoodii	*	0.80	10.77	31	80	*	**
8. Eriogonum umbellatum	*	0.56	10.00	38	56	*	**
9. Penstemon caespitosus	*	0.49	11.54	33	49	*	**
10. Pachystima myrsinites	*	0.43	2.31	15	43	*	**
11. Erigeron sp.	*	0.42	19.23	62	42	*	**
12. Agropyron smithii	*	0.35	9.23	23	35	*	**
13. Koeleria gracilis	*	0.23	6.93	8	23	*	**
14. Stipa comata	*	0.23	2.31	8	23	*	**
15. Bromus marginatus	*	0.21	5.38	23	21	*	**
16. Agropyron spicatum	*	0.18	3.85	8	18	*	**
17. Geranium richardsonii	*	0.11	3.85	8	11	*	**
18. Astragalus sp.	*	0.08	5.38	15	8	*	**
19. Oryzopsis hymenoides	*	0.06	4.62	8	6	*	**
20. Achillea lanulosa	*	0.06	3.85	23	6	*	**
21. Stipa sp.	*	0.06	3.85	15	6	*	**
22. Hedysarum boreale	*	0.06	2.31	8	6	*	**
23. Thalictrum fendleri	*	0.04	0.77	8	4	*	**
24. Haplopappus nuttallii	*	0.03	3.08	23	3	*	**
25. Galium boreale	*	0.03	2.31	23	3	*	**
26. Ipomopsis sp.	*	0.03	1.54	15	3	*	**
27. Frasera speciosa	*	0.03	0.77	8	3	*	**
28. Phlox sp.	*	0.03	0.77	8	3	*	**
29. Muhlenbergia sp.	*	0.02	1.54	15	2	*	**
30. Oxytropis lambertii	*	0.02	0.77	8	1	*	**

Table 2.3-12 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		OCTOBER 1974 (SUMMARY OF 13 TRANSECTS) CONTINUED					
31. Solidago sp.	*	0.01	1.54	15	1	*	**
32. Antennaria sp.	*	0.01	0.77	8	1	*	**
33. Senecio sp.	*	0.01	0.77	8	1	*	**
34. Sitanion longifolium	*	0.01	0.77	8	1	*	**
35. Gutierrezia sarothrae	*	0.00	0.77	8	0	*	**
36. Physaria florbunda	*	0.00	0.77	8	0	*	**
37. Unknown Compositae	*	0.22	7.69	38	22	*	**
38. Unknown Boraginaceae	*	0.12	0.77	8	12	*	**
39. Unknown Crucifereae	*	0.05	3.85	15	5	*	**
40. Unknown Umbellifereae	*	0.02	0.77	8	2	*	**
All Species		21.39			2139		
		MAY-JUNE 1975 (SUMMARY OF 5 TRANSECTS)					
1. Carex geyeri	2,3,4	1.96	30.00	60	196	*	**
2. Oryzopsis hymenoides	2	0.52	28.00	80	52	*	**
3. Haplopappus nuttallii	2	0.32	20.00	40	32	*	**
4. Agropyron trachycaulum	2	0.30	20.00	60	30	*	**
5. Penstemon caespitosus	2,3	0.22	18.00	80	22	*	**
6. Koeleria gracilis	2	0.20	22.00	40	20	*	**
7. Mahonia repens	3	0.16	10.00	20	16	*	**
8. Stipa sp.	2	0.12	10.00	20	12	*	**
9. Cryptantha sericea	3	0.12	4.00	20	12	*	**
10. Linum lewisii	2,3	0.10	10.00	40	10	*	**
11. Balsamorhiza sagittata	1	0.10	4.00	20	10	*	**
12. Poa sandbergii	2	0.08	8.00	40	8	*	**
13. Eriogonum umbellatum	2	0.08	6.00	60	8	*	**
14. Osmorhiza depauperata	3,4	0.08	4.00	20	8	*	**
15. Eriogonum ovalifolium	2	0.06	6.00	20	6	*	**
16. Lupinus sp.	2	0.06	6.00	20	6	*	**
17. Clematis hirsutissima	3,4	0.06	4.00	20	6	*	**
18. Gutierrezia sarothrae	2	0.04	4.00	20	4	*	**
19. Achillea lanulosa	2	0.04	2.00	20	4	*	**
20. Physaria floribunda	2,4	0.02	10.00	40	2	*	**
21. Agropyron smithii	2	0.02	4.00	40	2	*	**
22. Frasera sp.	2	0.02	4.00	20	2	*	**
23. Ipomopsis sp.	2	0.02	4.00	20	2	*	**

Table 2.3-12 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		MAY-JUNE 1975 (SUMMARY OF 5 TRANSECTS CONTINUED					
24. Solidago sp.	2	0.02	4.00	40	2	*	**
25. Aster sp.	2	0.02	2.00	20	2	*	**
26. Eriogonum sp.	2	0.02	2.00	20	2	*	**
27. Lithospermum ruderale	2,3,4	0.02	2.00	20	2	*	**
28. Senecio integerrimus	3	0.02	2.00	20	2	*	**
29. Collinsia parviflora	3,4	0.01	14.00	60	1	*	**
30. Poa sp.	2	0.01	12.00	40	1	*	**
31. Crepis acuminata	2	0.01	4.00	40	1	*	**
32. Erigeron sp.	2	0.00	14.00	40	0	*	**
33. Antennaria sp.	2	0.00	8.00	40	0	*	**
34. Delphinium nelsonii	2,3	0.00	8.00	40	0	*	**
35. Astragalus sp.	2,3,4	0.00	4.00	40	0	*	**
36. Taraxacum officinale	2	0.00	4.00	20	0	*	**
37. Bromus marginatus	2	0.00	2.00	20	0	*	**
38. Circium arvense	2	0.00	2.00	20	0	*	**
39. Cryptantha sericea	2	0.00	2.00	20	0	*	**
40. Cymopterus sp.	3	0.00	2.00	20	0	*	**
41. Galium boreale	2	0.00	2.00	20	0	*	**
42. Lappula redowskii	3	0.00	2.00	20	0	*	**
43. Phlox longifolia	2,3,4	0.00	2.00	20	0	*	**
44. Trifolium gymnocarpon	2	0.00	2.00	20	0	*	**
45. Unknown	*	0.08	6.00	**	8	*	**
All Species		4.91			491		
		JULY 1975 (SUMMARY OF 5 TRANSECTS)					
1. Carex geyeri	2	2.50	32.00	40	250	*	**
2. Eriogonum umbellatum	2,6	1.08	16.00	60	108	1.3	7.9
3. Oryzopsis hymenoides	2,6,5	0.98	28.00	80	98	*	**
4. Stipa comata	7	0.98	10.00	20	98	*	**
5. Poa sandbergii	2	0.90	16.00	20	90	*	**
6. Agropyron trachycaulum	2,4	0.64	32.00	60	64	*	**
7. Haplopappus nuttallii	4	0.64	22.00	40	64	0.8	3.6
8. Penstemon caespitosus	2	0.56	8.00	40	56	0.3	1.9
9. Gutierrezia sarothrae	3,6,5	0.32	6.00	40	32	0.5	1.3
10. Manonia repens	6,2	0.38	14.00	40	38	0.5	3.5

Table 2.3-12 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		JULY 1975 (SUMMARY OF 5 TRANSECTS) CONTINUED					
11. Linum lewisii	2,4,5	0.26	20.00	60	26	0.7	3.3
12. Koeleria gracilis	6,5	0.26	10.00	40	26	*	**
13. Cryptantha sericea	2,7	0.20	26.00	80	20	0.5	1.9
14. Comandra umbellata	2	0.16	8.00	20	16	0.6	7.0
15. Crepis acuminata	6,2	0.12	6.00	60	12	0.1	2.0
16. Pachystima myrsinites	2	0.12	4.00	20	12	0.1	3.0
17. Angelica ampla	2,7	0.10	6.00	20	10	0.1	2.0
18. Lupinus caudatus	2	0.10	6.00	20	10	0.1	1.3
19. Balsamorhiza sagittata	6,7	0.10	2.00	20	10	0.0	1.0
20. Physaria floribunda	2,5	0.08	10.00	40	8	0.2	2.0
21. Erigeron pumilus	6	0.06	8.00	20	6	0.1	1.3
22. Galium boreale	4	0.06	6.00	20	6	0.3	5.0
23. Penstemon sp.	4	0.06	4.00	20	6	0.1	2.0
24. Heuchera parvifolia	6	0.06	4.00	20	6	0.0	1.0
25. Ipomopsis aggregata	4	0.06	4.00	20	6	0.0	1.0
26. Hedysarum boreale	6	0.06	2.00	20	6	0.0	2.0
27. Clematis hirsutissima	6	0.06	2.00	20	6	0.0	1.0
28. Elymus cinereus	2	0.06	2.00	20	6	*	**
29. Astragalus diversifolius	2,5	0.04	6.00	40	4	0.1	2.0
30. Erysimum asperum	7	0.04	2.00	20	4	0.1	3.0
31. Lithospermum ruderale	6	0.04	2.00	20	4	0.0	1.0
32. Bromus tectorum	7	0.02	4.00	20	2	0.1	2.5
33. Astragalus chamaeleuce	2	0.02	2.00	20	2	0.1	5.0
34. Antennaria pulcherrima	6	0.02	2.00	20	2	0.0	1.0
35. Circium sp.	2	0.02	2.00	20	2	0.0	1.0
36. Sphaeralcea coccinea	2	0.02	2.00	20	2	0.0	1.0
37. Phlox longifolia	7,2	0.00	12.00	60	0	0.2	1.7
38. Collinsia parviflora	6,7,5	0.00	10.00	40	0	0.3	3.2
39. Chenopodium fremontii	2	0.00	4.00	20	0	0.1	2.0
40. Achillea lanulosa	2	0.00	2.00	20	0	0.1	4.0
41. Agoseris glauca	2	0.00	2.00	20	0	0.0	1.0
42. Agropyron smithii	2	0.00	2.00	20	0	*	**

Table 2.3-12 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		JULY 1975 (SUMMARY OF 5 TRANSECTS) CONTINUED					
43. Bromus marginatus	2	0.00	2.00	20	0	*	**
44. Carex sp.	2	0.00	2.00	20	0	*	**
45. Erigeron eatonii	2	0.00	2.00	20	0	0.0	1.0
46. Poa sp.	2	0.00	2.00	20	0	**	**
All Species		11.36			1136		
		SEPTEMBER 1975 (SUMMARY OF 5 TRANSECTS)					
1. Carex geyeri	2	2.66	30.00	60	266	*	**
2. Poa sandbergii	2	0.72	22.00	40	72	*	**
3. Oryzopsis hymenoides	2,7	0.62	20.00	100	62	*	**
4. Haplopappus nuttallii	7,2	0.62	22.00	40	62	0.9	4.0
5. Penstemon caespitosus	2	0.48	26.00	80	48	1.0	3.7
6. Stipa comata	7	0.46	10.00	40	46	*	**
7. Senecio canus	2	0.40	12.00	20	40	1.1	8.0
8. Agropyron trachycaulum	2	0.34	24.00	80	34	*	**
9. Linum lewisii	2	0.14	16.00	40	14	0.5	3.1
10. Cryptantha sericea	2	0.12	20.00	80	12	0.4	2.0
11. Koeleria gracilis	2	0.12	12.00	40	12	*	**
12. Castilleja chromosa	2	0.08	6.00	20	8	0.1	1.0
13. Helianthella uniflora	4	0.08	6.00	20	8	0.1	1.0
14. Eriogonum umbellatum	2	0.08	4.00	10	8	0.1	2.0
15. Balsamorhiza sagittata	8	0.08	2.00	20	8	0.0	1.0
16. Elymus cinereus	2	0.08	2.00	20	8	*	**
17. Erigeron eatonii	8,2	0.06	4.00	20	6	0.2	3.2
18. Ipomopsis aggregata	6	0.06	4.00	20	6	0.0	1.0
19. Physaria floribunda	3,2	0.04	8.00	40	4	0.2	2.0
20. Galium boreale	2	0.04	6.00	20	4	0.2	3.7
21. Astragalus diversifolius	2,3	0.04	6.00	40	4	0.1	2.3
22. Comandra umbellata	2	0.04	6.00	10	4	0.1	1.7
23. Lithospermum ruderale	7	0.04	2.00	10	4	0.0	2.0

Table 2.3-12 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			SEPTEMBER 1975 (SUMMARY OF 5 TRANSECTS) CONTINUED				
24. Clematis hirsutissima	8	0.04	2.00	20	4	0.0	1.0
25. Polygonum sawatchense	6	0.02	2.00	20	2	0.1	7.0
26. Achillea lanulosa	2	0.02	2.00	20	2	0.1	3.0
27. Penstemon fremontii	7	0.02	2.00	20	2	0.0	2.0
28. Erysimum asperum	8	0.02	2.00	20	2	0.0	1.0
29. Hedysarum boreale	2	0.02	2.00	20	2	0.0	1.0
30. Heuchera parvifolia	2	0.02	2.00	20	2	0.0	1.0
31. Lupinus caudatus	8	0.02	2.00	20	2	0.0	1.0
32. Sitanion longifolium	8	0.02	2.00	20	2	*	**
33. Sphaeralcea coccinea	2	0.02	2.00	20	2	0.0	1.0
34. Chenopodium leptophyllum	2	0.00	2.00	20	0	0.1	3.0
All Species		7.62			762		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-13 Species encountered in the shrub stratum of the serviceberry-oak and serviceberry-snowberry mixed brush associations for RBOSP

Species	Percent Cover	Percent Frequency	Density #/ha
SERVICEBERRY-OAK MIXED BRUSH			
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 6 TRANSECTS)			
1. Amelanchier utahensis	39.17	100.00	3250
2. Symphoricarpos oreophilus	12.92	100.00	4700
3. Quercus gambelii	11.78	53.33	792
4. Artemisia tridentata	8.00	98.00	4739
5. Purshia tridentata	3.86	43.33	950
6. Prunus virginiana	3.18	43.33	525
7. Cercocarpus montanus	0.44	3.33	8
8. Rosa woodsii	0.36	23.33	53
9. Chrysothamnus viscidiflorus	0.08	40.00	381
10. Tetradymia canescens	0.03	3.33	25
11. Populus tremuloides	0.00	6.67	11
12. Amelanchier alnifolia	0.00	3.33	31
13. Ribes inerme	0.00	3.33	8
All Species	79.82		15,473
SERVICEBERRY-SNOWBERRY MIXED BRUSH			
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 11 TRANSECTS)			
1. Amelanchier utahensis	25.57	96.36	2712
2. Symphoricarpos oreophilus	11.87	94.55	3773
3. Artemisia tridentata	7.74	83.64	3061
4. Cercocarpus montanus	2.07	21.82	368
5. Chrysothamnus viscidiflorus	0.64	63.64	1364
6. Purshia tridentata	0.41	29.09	105
7. Tetradymia canescens	0.19	25.45	630
8. Pinus edulis	0.16	25.45	62
9. Chrysothamnus nauseosus	0.12	9.09	36
10. Gutierrezia sarothrae	0.01	9.09	35
11. Juniperus osteosperma	0.00	9.09	9
12. Opuntia polyacantha	0.00	3.64	3
13. Ribes inerme	0.00	3.64	3
14. Ceanothus martini	0.00	1.82	41
15. Pseudotsuga menziesii	0.00	1.82	2
All Species	48.78		12,204

*Value not recorded in the field because of sampling procedure or absence of species.

Table 2.3-14 Species encountered in the herbaceous stratum of the serviceberry-oak and serviceberry-snowberry mixed brush associations for RBOSP

Species	Percent Cover	Percent Frequency	Density #/quad. ($.5m^2$)
SERVICEBERRY-OAK MIXED BRUSH			
JULY 1975 (SUMMARY OF 2 TRANSECTS)			
1. Carex geyeri	6.25	80.00	*
2. Oryzopsis hymenoides	0.90	20.00	*
3. Comandra umbellata	0.40	20.00	2.8
4. Eriogonum umbellatum	0.35	10.00	0.3
5. Agropyron trachycaulum	0.25	20.00	*
6. Angelica ampla	0.25	15.00	0.5
7. Galium boreale	0.15	15.00	1.5
8. Penstemon sp.	0.15	10.00	0.4
9. Ipomopsis aggregata	0.15	10.00	0.2
10. Penstemon caespitosus	0.15	10.00	0.2
	9.00		5.9
Total Number of Herbaceous Species 23			
Total Cover of Herbaceous Species	26.34		
SERVICEBERRY-SNOWBERRY MIXED BRUSH			
JULY 1975 (SUMMARY OF 3 TRANSECTS)			
1. Stipa comata	1.63	16.67	*
2. Eriogonum umbellatum	1.57	20.00	4.0
3. Poa sandbergii	1.50	26.67	*
4. Haplopappus nuttallii	1.07	36.67	2.5
5. Oryzopsis hymenoides	1.03	33.33	*
6. Agropyron trachycaulum	0.90	40.00	*
7. Penstemon caespitosus	0.80	36.67	2.7
8. Koeleria gracilis	0.43	16.67	*
9. Linum lewisii	0.43	33.33	2.2
10. Cryptantha sericea	0.30	36.67	1.3
	9.66		12.7
Total Number of Herbaceous Species 29			
Total Cover of Herbaceous Species	11.00		

*Value not recorded in the field because of sampling procedure or absence of species.

Table 2.3-15 Species encountered in the mature tree stratum of the serviceberry-snowberry mixed brush association for RBOSP

Species	Percent Cover	Percent Frequency	Density #/ha	Constancy	Basal Area
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 11 TRANSECTS)					
1. *Pinus edulis*	0.16	3.64	3.03	18	.04

Table 2.3-16 Species encountered in the mature tree stratum in the pinyon-juniper type for RBOSP

Species	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Basal Area m^2/ha
OCTOBER 1974 (SUMMARY OF 26 TRANSECTS)						
1. Juniperus osteosperma	14.02	69.23	--	1402	224	30.47
2. Pinus edulis	8.85	43.27	--	885	85	8.26
All Species	22.87			2287	309	38.73
MAY-JUNE, JULY, SEPTEMBER 1975 (SUMMARY OF 25 TRANSECTS)						
1. Pinus edulis	11.50	59.00	88	1150	111	14.33
2. Juniperus osteosperma	9.73	73.60	88	973	143	22.73
All Species	21.23			2123	254	37.06

Table 2.3-17 Species encountered in the shrub-tree seedling stratum in the pinyon-juniper type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative State (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
OCTOBER 1974 (SUMMARY OF 26 TRANSECTS)										
1. Artemisia tridentata	*	*	*	4.11	84.62	100	411	2519	*	**
2. Pinus edulis	*	*	*	0.88	62.50	80	88	245	*	**
3. Cercocarpus montanus	*	*	*	0.69	14.42	23	69	64	*	**
4. Amelanchier utahensis	*	*	*	0.65	22.12	38	65	216	*	**
5. Purshia tridentata	*	*	*	0.58	24.04	50	58	76	*	**
6. Atriplex confertifolia	*	*	*	0.44	8.65	23	43	123	*	**
7. Juniperus osteosperma	*	*	*	0.27	33.65	69	27	75	*	**
8. Symphoricarpos oreophilus	*	*	*	0.21	12.50	23	21	65	*	**
9. Chrysothamnus sp.	*	*	*	0.16	13.46	23	15	75	*	**
10. Chrysothamnus viscidiflorus	*	*	*	0.12	16.35	38	12	156	*	**
11. Chrysothamnus nauseosus	*	*	*	0.10	18.27	19	10	118	*	**
12. Tetradymia canescens	*	*	*	0.04	2.88	8	4	21	*	**
13. Eurotia lanata	*	*	*	0.00	1.92	4	0	7	*	**
14. Ephedra viridis	*	*	*	0.00	0.96	4	0	1	*	**
15. Sorbus scopulina	*	*	*	0.00	0.96	4	0	1	*	**
All Species				8.25			825	376		
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 25 TRANSECTS)										
1. Artemisia tridentata	2,3	3	4,5	4.69	84.80	100	469	1670	.08	142
2. Amelanchier utahensis	2,3,4	5	7	2.50	40.00	64	250	450	.40	140
3. Purshia tridentata	2,3,5	5	2,7	.94	42.40	60	94	230	.03	7
4. Pinus edulis	2	2	2	.90	69.60	92	90	281	.36	101
5. Cercocarpus montanus	2,3	5	2,7	.55	25.60	40	55	157	.19	21
6. Chrysothamnus viscidiflorus	2	3	4,5	.39	41.60	56	39	314	.08	15
7. Symphoricarpos oreophilus	2	2,4	7	.21	22.40	44	21	151	.03	2
8. Juniperus osteosperma	2	2	2	.17	37.60	72	17	79	.06	5
9. Atriplex confertifolia	2	*	2	.06	7.20	16	6	30	.14	2

Table 2.3-17 (Continued)

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
	MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 25 TRANSECTS) (CONTINUED)									
10. Opuntia polyacantha	2	4,5	2	.05	19.20	52	5	42	.0	**
11. Gutierrezia sarothrae	*	*	4,5	.04	13.60	20	4	148	*	**
12. Chrysothamnus nauseosus	2	3	4,5	.03	16.80	48	3	82	.00	**
13. Tetradymia canescens	2	*	2	.03	12.80	40	3	59	.01	**
14. Opuntia fragilis	2	4,5	*	.01	7.20	12	1	25	.00	**
15. Artemisia frigida	*	*	5,6	.00	3.20	4	0	11	*	**
16. Ephedra viridis	*	*	2	.00	1.60	4	0	5	*	**
17. Eurotia lanata	*	*	5,6	.00	2.40	4	0	11		
All Species				10.57			1057	3745		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-18 Species encountered in the herbaceous stratum in the pinyon-juniper type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative state (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity
7. Seasonal senescence
8. Dead or dormant

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
OCTOBER 1974 (SUMMARY OF 26 TRANSECTS)							
1. Poa sandbergii	*	0.98	23.85	50	98	*	**
2. Agropyron trachycaulum	*	0.86	27.69	69	86	*	**
3. Poa sp.	*	0.48	12.31	30	48	*	**
4. Oryzopsis hymenoides	*	0.28	11.92	50	28	*	**
5. Cryptantha sericea	*	0.24	9.23	38	24	*	**
6. Carex sp.	*	0.23	4.62	12	23	*	**
7. Phlox hoodii	*	0.22	8.08	26	22	*	**
8. Haplopappus nuttallii	*	0.21	22.31	50	21	*	**
9. Gutierrezia sarothrae	*	0.20	7.69	31	20	*	**
10. Arenaria sp.	*	0.13	6.92	31	13	*	**
11. Eriogonum sp.	*	0.10	6.15	19	10	*	**
12. Koeleria gracilis	*	0.09	9.62	4	9	*	**
13. Mentzelia sp.	*	0.09	1.54	3	9	*	**
14. Bouteloua gracilis	*	0.08	1.15	8	8	*	**
15. Penstemon caespitosus	*	0.08	3.46	15	8	*	**
16. Moss	*	0.07	0.38	4	7	*	**
17. Agropyron smithii	*	0.06	2.69	12	6	*	**
18. Lithospermum sp.	*	0.06	2.31	12	6	*	**
19. Phlox sp.	*	0.05	3.85	15	5	*	**
20. Sitanion longifolium	*	0.04	5.00	31	4	*	**
21. Chenopodium sp.	*	0.04	1.92	12	4	*	**
22. Erigeron sp.	*	0.04	6.15	31	4	*	**
23. Physaria floribunda	*	0.03	8.08	46	3	*	**
24. Agropyron spicatum	*	0.03	0.77	4	3	*	**
25. Aster sp.	*	0.02	1.54	15	2	*	**
26. Penstemon sp.	*	0.01	2.69	15	1	*	**
27. Lupinus sp.	*	0.01	1.54	8	1	*	**
28. Eriogonum umbellatum	*	0.01	1.15	12	1	*	**
29. Stipa sp.	*	0.01	1.15	8	1	*	**
30. Antennaria sp.	*	0.01	0.77	4	1	*	**

Table 2.3-18 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		OCTOBER 1974 (SUMMARY OF 4 TRANSECTS) CONTINUED					
31. Euphorbia sp.	*	0.01	0.38	4	1	*	**
32. Mahonia repens	*	0.01	0.38	4	1	*	**
33. Oenothera sp.	*	0.01	0.38	4	1	*	**
34. Plantago sp.	*	0.01	0.38	4	1	*	**
35. Astragalus sp.	*	0.00	1.15	8	0	*	**
36. Chaenactis sp.	*	0.00	0.77	8	0	*	**
37. Descurania sp.	*	0.00	0.77	8	0	*	**
38. Lepidium sp.	*	0.00	0.77	4	0	*	**
39. Cirsium sp.	*	0.00	0.77	4	0	*	**
40. Balsamorhiza sagittata	*	0.00	0.38	4	0	*	**
41. Bromus tectorum	*	0.00	0.38	4	0	*	**
42. Unknown Compositae	*	0.21	4.62	12	21	*	**
43. Unknown Gramineae	*	0.11	1.92	8	11	*	**
44. Unknown Baraginaceae	*	0.03	1.54	4	3	*	**
45. Unknown Cruciferae	*	0.01	2.31	23	1	*	**
All Species		5.16			5.6		
		MAY-JUNE 1975 (SUMMARY OF 7 TRANSECTS)					
1. Agropyron trachycaulum	2	0.46	48.57	100	46	*	**
2. Oryzopsis hymenoides	2	0.31	28.57	71	31	*	**
3. Poa sandbergii	2	0.29	17.14	57	29	*	**
4. Phlox hoodii	2	0.22	25.71	71	22	*	**
5. Stipa sp.	2	0.21	11.43	29	21	*	**
6. Koeleria gracilis	2	0.15	21.43	57	15	*	**
7. Haplopappus nuttallii	2	0.11	18.57	71	11	*	**
8. Poa sp.	2	0.11	15.71	57	11	*	**
9. Antennaria sp.	2	0.10	15.71	57	10	*	**
10. Cryptantha sericea	2	0.02	5.71	14	2	*	**
11. Poa fendleriana	2	0.07	1.43	14	7	*	**
12. Carex geyeri	2	0.06	4.29	29	6	*	**
13. Eriogonum sp.	3,2	0.05	4.29	14	5	*	**
14. Sitanion longifolium	2	0.04	10.00	57	4	*	**
15. Eriogonum umbellatum	2	0.04	2.86	14	4	*	**

Table 2.3-18 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			MAY-JUNE 1975 (SUMMARY OF 7 TRANSECTS) CONTINUED				
16. Festuca sp.	2	0.02	5.71	14	2	*	**
17. Agropyron smithii	2	0.01	2.86	29	1	*	**
18. Balsamorniza sagittata	2	0.01	1.43	14	1	*	**
19. Lomatium sp.	4,5	0.01	1.43	14	1	*	**
20. Trifolium gymnocarpon	2,3	0.00	8.57	29	0	*	**
21. Physaria floribunda	4,2,3	0.00	5.71	43	0	*	**
22. Chaenactis douglass	2	0.00	4.29	14	0	*	**
23. Cymopterus sp.	2	0.00	4.29	29	0	*	**
24. Sisymbrium sp.	2,3	0.00	4.29	29	0	*	**
25. Sphaeralcea coccinea	2	0.00	4.29	14	0	*	**
26. Arenaria sp.	2,3	0.00	2.86	14	0	*	**
27. Descurainia pinnata	3	0.00	2.86	14	0	*	**
28. Agoseris glauca	2	0.00	1.43	14	0	*	**
29. Agoseris sp.	2	0.00	1.43	14	0	*	**
30. Androsace septentrionalis	2	0.00	1.43	14	0	*	**
31. Astragalus sp.	3,2	0.00	1.43	14	0	*	**
32. Carex sp.	2	0.00	1.43	14	0	*	**
33. Chenopodium fremontii	2	0.00	1.43	14	0	*	**
34. Crepis sp.	2	0.00	1.43	14	0	*	**
35. Delphinium sp.	2	0.00	1.43	14	0	*	**
36. Eupnorbia sp.	2	0.00	1.43	14	0	*	**
37. Gutierrezia sarothrae	2	0.00	1.43	14	0	*	**
38. Lappula redowskii	3	0.00	1.43	14	0	*	**
39. Penstemon sp.	2	0.00	1.43	14	0	*	**
40. Phlox longifolia	2	0.00	1.43	14	0	*	**
41. Phlox multiflora	4,2,3	0.00	1.43	14	0	*	**
42. Senecio sp.	2	0.00	1.43	14	0	*	**
43. Unknown Compositae	2	0.00	1.43	14	0	*	**
44. Unknown	*	0.00	2.86	**	0	*	**
All Species		2.29			22		

Table 2.3-18 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			JULY 1975 (SUMMARY OF 7 TRANSECTS)				
1. Agropyron trachycaulum	2	1.01	47.14	86	101	*	**
2. Poa sandbergii	2	0.71	12.86	71	71	*	**
3. Oryzopsis hymenoides	2,6,5	0.53	28.57	86	53	*	**
4. Koeleria gracilis	2	0.43	14.29	43	43	*	**
5. Stipa comata	7,5,2	0.41	14.29	57	41	*	**
6. Agropyron smithii	4,2	0.37	15.71	71	37	*	**
7. Phlox hoodii	2	0.34	30.00	86	34	0.2	1.6
8. Haplopappus nuttallii	4,6	0.34	18.57	71	34	0.7	2.2
9. Cryptantha sericea	7,2	0.31	32.86	100	31	1.3	1.5
10. Sphaeralcea coccinea	6,2	0.24	5.71	43	24	1.3	3.8
11. Eriogonum lonchophyllum	2,4	0.23	14.29	29	23	0.6	10.5
12. Euphorbia fendleri	3,2	0.21	17.14	43	21	0.5	3.2
13. Sitanion longifolium	6	0.10	7.14	43	10	*	**
14. Agropyron inerme	2	0.09	8.57	14	9	0.5	3.0
15. Erigeron eatonii	2	0.07	11.43	57	7	*	**
16. Carex ceyeri	2	0.07	4.29	29	7	*	**
17. Hymenopappus filifolius	2	0.06	2.86	14	6	0.0	1.0
18. Eriogonum umbellatum	2	0.06	2.86	14	6	0.1	2.0
19. Astragalus diversifolius	2,6	0.04	4.29	43	4	0.1	1.3
20. Penstemon caespitosus	2	0.04	4.29	29	4	0.1	1.3
21. Trifolium gymnocarpon	2	0.03	11.43	29	3	0.2	2.1
22. Gutierrezia sarothrae	2	0.03	2.86	29	3	0.0	1.0
23. Streptanthus cordatus	6	0.03	1.43	14	3	0.0	1.0
24. Balsamorhiza sagittata	2	0.03	1.43	14	3	0.0	1.0
25. Castilleja linariaefolia	4	0.03	1.43	14	3	0.0	1.0
26. Arenaria eastwoodiae	5	0.01	5.71	29	1	0.1	2.5
27. Ipomopsis congesta	4	0.01	4.29	14	1	0.1	1.3
28. Agoseris glauca	2	0.01	4.29	14	1	0.1	1.3
29. Chenopodium fremontii	3	0.01	2.86	29	1	0.1	2.5
30. Astragalus spatulatus	2	0.01	1.43	14	1	0.1	7.0
31. Crepis acuminata	2	0.01	1.43	14	1	0.0	2.0
32. Senecio multilobatus	2	0.01	1.43	14	1	0.1	5.0
33. Physaria floribunda	2	0.00	8.57	43	0	0.1	1.5
34. Astragalus chamaeleuce	2	0.00	4.29	29	0	0.1	1.3
35. Phlox longifolia	2	0.00	2.86	14	0	0.1	3.5

Table 2.3-18 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			JULY 1975 (SUMMARY OF 7 TRANSECTS) CONTINUED				
36. Antennaria microphylla	2	0.00	1.43	14	0	0.0	1.0
37. Astragalus purshii	2	0.00	1.43	14	0	0.0	2.0
38. Chaenactis douglasii	2	0.00	1.43	14	0	0.0	1.0
39. Lygodesmia juncea	2	0.00	1.43	14	0	*	**
All Species		5.88			588		
			SEPTEMBER 1975 (SUMMARY OF 7 TRANSECTS)				
1. Agropyron trachycaulum	2	0.94	52.86	100	94	*	**
2. Poa sandbergii	2	0.70	31.43	71	70	*	**
3. Oryzopsis hymenoides	2,7	0.36	34.29	100	36	*	**
4. Moss	*	0.34	7.14	43	34	*	**
5. Haplopappus nuttallii	7,2	0.31	20.00	71	31	0.3	1.5
6. Phlox nanii	2	0.27	27.14	71	27	0.7	2.5
7. Euphorbia fendleri	2	0.21	15.71	43	21	0.4	2.5
8. Eriogonum lonchophyllum	2,6	0.20	12.86	29	20	0.4	3.0
9. Cryptantha cericea	1,2	0.17	30.00	86	17	0.8	2.6
10. Koeleria cristata	2	0.16	12.86	29	16	*	**
11. Sphaeralcea coccinea	2	0.11	5.71	43	11	0.6	10.5
12. Stipa comata	2	0.10	10.00	14	10	*	**
13. Stanleya tomentosa	6	0.10	4.29	14	10	*	**
14. Carex geyeri	2	0.06	4.24	29	6	*	**
15. Eriogonum umbellatum	2	0.06	2.86	14	6	0.1	2.0
16. Penstemon caespitosus	2	0.04	4.29	29	4	0.1	1.3
17. Hymenopappus filifolius	2	0.04	4.29	14	4	0.2	1.0
18. Agropyron smithii	2	0.03	4.29	29	3	*	**
19. Thlaspi montanum	2	0.03	4.29	14	3	0.1	1.7
20. Astragalus diversifolius	2	0.03	2.86	29	3	0.1	3.0
21. Bromus tectorum	8	0.03	1.43	14	3	*	**
22. Erigeron eatonii	2	0.01	7.14	43	1	0.1	1.2
23. Ipomopsis longiflora	6	0.01	4.29	14	1	0.1	1.7
24. Arenaria [illegible]	7	0.01	1.43	29	1	0.1	2.5
25. Eriogonum [illegible]	2	0.01	1.43	14	1	0.1	3.0

Table 2.3-18 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		SEPTEMBER 1975 (SUMMARY OF 7 TRANSECTS) CONTINUED					
26. Senecio multilobatus	2	0.01	1.43	14	1	0.0	2.0
27. Aster campestris	5	0.01	1.43	14	1	0.0	1.0
28. Balsamorhiza sagittata	8	0.01	1.43	14	1	0.0	1.0
29. Astragalus spatulatus	2	0.00	4.29	14	0	0.1	1.3
30. Polyganum sawatchense	2	0.00	1.43	14	0	0.0	3.0
31. Astragalus chamaeleuce	2	0.00	1.43	14	0	0.0	1.0
32. Streptanthus cordatus	2	0.00	1.43	14	0	0.0	1.0
All Species		4.36			436		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-19 Species encountered in the mature tree stratum of the pinyon-juniper mixed brush, pinyon-juniper sagebrush, and pinyon-juniper woodland associations for RBOSP

Species	Percent Cover	Percent Frequency	Density #/ha	Constancy	Basal Area/Ha
PINYON-JUNIPER MIXED BRUSH					
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 8 TRANSECTS)					
1. Pinus edulis	10.56	65.00	114.58	100	17.47
2. Juniperus osteosperma	4.29	47.50	58.33	63	5.83
All Species	14.85		172.91		23.30
PINYON-JUNIPER SAGEBRUSH					
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 8 TRANSECTS)					
1. Juniperus osteosperma	11.45	80.00	181.25	100	21.44
2. Pinus edulis	9.32	50.00	118.75	75	3.83
All Species	20.77		300.00		25.27
PINYON-JUNIPER WOODLAND					
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 9 TRANSECTS)					
1. Pinus edulis	14.28	62.22	100.00	100	39.00
2. Juniperus osteosperma	13.05	91.11	183.33	89	21.03
All Species	27.33		283.33		60.03

Table 2.3-20 Species encountered in the shrub stratum of the pinyon-juniper mixed brush, pinyon-juniper sagebrush, and pinyon-juniper woodland associations for RBOSP

Species	Percent Cover	Percent Frequency	Density #/ha
PINYON-JUNIPER MIXED BRUSH			
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 8 TRANSECTS)			
1. Amelanchier utahensis	7.75	92.50	1175
2. Artemisia tridentata	6.87	97.50	2323
3. Pinus edulis	2.01	90.00	427
4. Purshia tridentata	1.11	52.50	271
5. Cercocarpus montanus	0.91	30.00	263
6. Symphoricarpos oreophilus	0.62	50.00	435
7. Chrysothamnus viscidiflorus	0.40	57.50	446
8. Juniperus osteosperma	0.33	62.50	165
9. Tetradymia canescens	0.08	17.50	108
10. Opuntia polyacantha	0.07	10.00	110
11. Ceanothus martini	0.03	5.00	4
12. Gutierrezia sarothrae	0.01	25.00	185
13. Chrysothamnus nauseosus	0.00	12.50	15
14. Opuntia fragilis	0.00	10.00	38
15. Atriplex confertifolia	0.00	2.50	2
All Species	20.19		5867
PINYON-JUNIPER SAGEBRUSH			
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 8 TRANSECTS)			
1. Artemisia tridentata	7.42	100.00	2542
2. Purshia tridentata	0.83	20.00	623
3. Chrysothamnus viscidiflorus	0.53	45.00	354
4. Juniperus osteosperma	0.23	50.00	85
5. Gutierrezia sarothrae	0.11	15.00	273
6. Chrysothamnus nauseosus	0.04	25.00	206
7. Pinus edulis	0.08	60.00	252
8. Amelanchier utahensis	0.07	20.00	179
9. Symphoricarpos oreophilus	0.04	10.00	25
10. Opuntia polyacantha	0.02	25.00	63
11. Tetradymia canescens	0.02	15.00	56
12. Opuntia fragilis	0.01	12.50	40
13. Eurotia lanata	0.00	7.50	67
14. Cercocarpus montanus	0.00	5.00	23
All Species	9.45		4788

Table 2.3-20 (Continued)

	Species	Percent Cover	Percent Frequency	Density #/ha
	PINYON-JUNIPER WOODLAND			
	MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 9 TRANSECTS)			
1.	Purshia tridentata	0.87	53.33	326
2.	Cercocarpus montanus	0.72	40.00	181
3.	Pinus edulis	0.64	60.00	176
4.	Artemisia tridentata	0.31	60.00	270
5.	Chrysothamnus viscidiflorus	0.25	24.44	161
6.	Atriplex confertifolia	0.16	17.78	83
7.	Juniperus osteosperma	0.08	17.78	28
8.	Opuntia polyacantha	0.05	22.22	50
9.	Tetradymia canescens	0.01	6.67	17
10.	Chrysothamnus nauseosus	0.00	13.33	31
11.	Amelanchier utahensis	0.00	11.11	46
12.	Artemisia frigida	0.00	8.84	30
13.	Symphoricarpos oreophilus	0.00	8.89	11
14.	Ephedra viridis	0.00	4.44	13
15.	Gutierrezia sarothrae	0.00	2.22	4
	All Species	3.09		1427

*Value not recorded in the field because of sampling procedure or absence of species.

Table 2.3-21 Species encountered in the herbaceous stratum of the pinyon-juniper mixed brush, pinyon-juniper sagebrush, and pinyon-juniper woodland associations for RBOSP

Species	Percent Cover	Percent Frequency	Density #/quad.
PINYON-JUNIPER MIXED BRUSH			
JULY 1975 (SUMMARY OF 2 TRANSECTS)			
1. Agropyron trachycaulum	1.30	30.00	*
2. Eriogonum lonchophyllum	0.55	30.00	2.4
3. Haplopappus nuttallii	0.50	25.00	0.8
4. Euphorbia fendleri	0.35	25.00	1.7
5. Agropyron inerme	0.30	30.00	*
6. Phlox hoodii	0.20	35.00	1.2
7. Oryzopsis hymenoides	0.20	20.00	*
8. Cryptantha sericea	0.15	30.00	0.7
9. Penstemon caespitosus	0.10	10.00	0.3
10. Astragalus diversifolius	0.10	5.00	5.2
	3.75		12.3
Total Number of Herbaceous Species 21			
Total Cover of Herbaceous Species	4.05		
PINYON-JUNIPER SAGEBRUSH			
JULY 1975 (SUMMARY OF 3 TRANSECTS)			
1. Agropyron trachycaulum	1.27	53.33	*
2. Koeleria gracilis	0.97	30.00	*
3. Stipa comata	0.90	26.67	*
4. Agropyron smithii	0.87	23.33	*
5. Poa sandbergii	0.87	16.67	*
6. Oryzopsis hymenoides	0.70	33.33	*
7. Sphaeralcea coccinea	0.53	13.33	2.2
8. Phlox hoodii	0.47	30.00	1.6
9. Cryptantha sericea	0.40	46.67	2.9
10. Haplopappus nuttallii	0.30	20.00	0.7
	7.28		
Total Number of Herbaceous Species 26			
Total Cover of Herbaceous Species	8.31		

Table 2.3-21 (Continued)

Species	Percent Cover	Percent Frequency	Density #/quad
PINYON-JUNIPER WOODLAND			
JULY 1975 (SUMMARY OF 2 TRANSECTS)			
1. Poa sandbergii	1.20	15.00	*
2. Oryzopsis hymenoides	0.60	30.00	*
3. Agropyron trachycaulum	0.35	55.00	*
4. Cryptantha sericea	0.35	30.00	3.8
5. Phlox hoodii	0.30	20.00	0.9
6. Haplopappus nuttallii	0.25	10.00	0.2
7. Sitanion longifolium	0.20	15.00	*
8. Eriogonum umbellatum	0.20	10.00	0.4
9. Euphorbia fendleri	0.15	5.00	0.8
10. Erigeron eatonii	0.10	10.00	0.1
	3.70		6.2
Total Number of Herbaceous Species 24			
Total Cover of Herbaceous Species	4.25		

*Value not recorded in the field because of sampling procedure or absence of species.

Table 2.3-22 Species encountered in the mature tree stratum in the sagebrush type for RBOSP

Species	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Basal Area m^2/ha
MAY-JUNE, JULY, SEPTEMBER 1975 (SUMMARY OF 25 TRANSECTS)						
1. Juniperus osteosperma	0.00	1.60	8	0	1.33	0.23
2. Pinus edulis	0.00	0.80	4	0	0.67	0.04
All Species	0.00			0	2.00	0.27

Table 2.3-23 Species encountered in the shrub-tree seedling stratum in the sagebrush type for RBOSP.

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative State (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
OCTOBER 1974 (SUMMARY OF 23 TRANSECTS)										
1. Artemisia tridentata	*	*	*	24.11	100.00	100	2411	10595	*	**
2. Chrysothamnus viscidiflorus	*	*	*	1.19	23.91	30	119	510	*	**
3. Amelanchier utahensis	*	*	*	1.14	32.61	39	114	316	*	**
4. Chrysothamnus sp.	*	*	*	0.84	36.96	43	84	786	*	**
5. Atriplex confertifolia	*	*	*	0.58	13.04	17	58	244	*	**
6. Sarcobatus vermiculatus	*	*	*	0.51	18.48	22	51	198	*	**
7. Chrysothamnus nauseosus	*	*	*	0.32	16.30	22	32	152	*	**
8. Symphoricarpos oreophilus	*	*	*	0.20	22.83	35	20	226	*	**
9. Pinus edulis	*	*	*	0.13	22.83	43	13	46	*	**
10. Eurotia lanata	*	*	*	0.13	17.39	22	13	202	*	**
11. Purshia tridentata	*	*	*	0.09	11.96	22	9	31	*	**
12. Juniperus osteosperma	*	*	*	0.07	18.48	39	7	36	*	**
13. Tetradymia canescens	*	*	*	0.02	6.52	13	2	83	*	**
14. Atriplex canescens	*	*	*	0.01	8.70	9	1	29	*	**
All Species				29.34			2934	13484		
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 25 TRANSECTS)										
1. Artemisia tridentata	2	3	4,5,6	25.01	98.40	100	2501	8249	.20	1757
2. Symphoricarpos oreophilus	1,2	2,4	2,7	2.79	48.00	60	279	995	1.09	674
3. Amelanchier utahensis	1,2	5	2,6,7	2.43	40.80	52	243	439	2.17	671
4. Chrysothamnus viscidiflorus	2,8	2,3	2,4,5,6	1.96	80.80	92	196	3174	.01	13
5. Chrysothamnus nauseosus	2	3	2,4,5,6	1.06	20.80	32	106	412	.73	228
6. Sarcobatus vermiculatus	2	*	6	.32	7.20	12	32	99	.14	23
7. Gutierrezia sarothrae	*	*	4,5,6	.22	13.60	16	22	100	*	**
8. Purshia tridentata	2	5	7	.18	8.80	16	18	84	.00	0
9. Tetradymia canescens	2	2	2	.09	17.60	28	9	140	.00	0
10. Cercocarpus montanus	*	*	2	.08	.80	4	8	10	*	**
11. Pinus edulis	2	2	2	.06	15.20	24	6	17	.01	0

Table 2.3-23 (Continued)

	Phenology			Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
	May-June	July	September							
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 25 TRANSECTS) (CONTINUED)										
12. Eurotia lanata	2	2	2	.06	15.20	24	6	17	.00	0
13. Opuntia polyacantha	2	*	2	.04	12.40	32	4	95	.01	1
14. Atriplex confertifolia	2	*	*	.03	4.00	4	3	32	.00	0
15. Atriplex canescens	2	*	*	.01	1.60	8	1	3	.00	0
16. Rosa woodsii	8	*	*	.00	.80	4	0	1	*	**
17. Ribes cereum	*	5	2	.00	2.40	8	0	6	*	**
All Species				34.25			3425	13925		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-24 Species encountered in the herbaceous stratum in the sagebrush type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative state (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
OCTOBER 1974 (SUMMARY OF 23 TRANSECTS)							
1. Poa sp.	*	1.66	25.65	52	166	*	**
2. Agropyron smithii	*	1.02	20.09	43	102	*	**
3. Bromus tectorum	*	0.70	6.96	22	70	*	**
4. Arenaria sp.	*	0.60	13.91	30	60	*	**
5. Agropyron trachycaulum	*	0.57	22.17	39	57	*	**
6. Koeleria gracilis	*	0.55	13.04	26	55	*	**
7. Stipa comata	*	0.54	6.09	17	54	*	**
8. Oryzopsis hymenoides	*	0.42	11.30	39	42	*	**
9. Lupinus sp.	*	0.36	9.57	30	36	*	**
10. Phlox hoodii	*	0.29	8.26	13	29	*	**
11. Penstemon caespitosus	*	0.27	7.83	30	27	*	**
12. Carex sp.	*	0.26	7.83	17	26	*	**
13. Moss	*	0.24	1.74	4	24	*	**
14. Poa sandbergii	*	0.22	3.48	4	22	*	**
15. Eriogonum sp.	*	0.21	11.74	39	21	*	**
16. Hedysarum boreale	*	0.20	3.83	17	20	*	**
17. Gutierrezia sarothrae	*	0.15	6.52	30	15	*	**
18. Sitanion longifolium	*	0.14	4.78	22	14	*	**
19. Haplopappus nuttallii	*	0.13	6.09	22	13	*	**
20. Oxytropis lambertii	*	0.11	2.17	9	11	*	**
21. Eriogonum sp.	*	0.09	3.48	13	9	*	**
22. Stipa sp.	*	0.09	1.74	9	9	*	**
23. Cryptantha sericea	*	0.07	3.04	26	7	*	**
24. Lepidium sp.	*	0.07	2.17	9	7	*	**
25. Astragalus sp.	*	0.06	3.48	22	6	*	**
26. Penstemon sp.	*	0.04	2.17	9	4	*	**
27. Physaria floribunda	*	0.05	3.91	22	5	*	**
28. Salsola iberica sagittata	*	0.05	0.43	4	5	*	**
29. Aster sp.	*	0.01	0.43	4	1	*	**
30. Taraxacum sp.	*	0.01	0.43	4	1	*	**
31. Elymus cinereus	*	0.01	0.43	4	1	*	**
32. Penstemon strictus	*	0.01	0.43	4	1	*	**

Table 2.3-24 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			OCTOBER 1974 (SUMMARY OF 23 TRANSECTS) CONTINUED				
33. Agropyron spicatum	*	0.03	0.43	4	3	*	**
34. Sphaeralcea coccinea	*	0.02	3.04	17	2	*	**
35. Chenopodium sp.	*	0.02	0.87	4	2	*	**
36. Bouteloua gracilis	*	0.01	0.87	4	1	*	**
37. Elymus sp.	*	0.01	0.43	4	1	*	**
38. Eriogonum ovalifolium	*	0.01	0.43	4	1	*	**
39. Descurainia sp.	*	0.00	0.43	4	0	*	**
40. Lithospermum sp.	*	0.00	0.43	4	0	*	**
41. Senecio sp.	*	0.00	0.43	4	0	*	**
42. Townsendia incana	*	0.00	0.43	4	0	*	**
43. Trifolium gymnocarpon	*	0.00	0.43	4	0	*	**
44. Unknown Gramineae	*	1.96	17.17	**	196	*	**
45. Unknown Cruciferae	*	0.01	1.74	**	1	*	**
All Species		11.37			1137		
			MAY-JUNE 1975 (SUMMARY OF 7 TRANSECTS)				
1. Poa sp.	2,3	1.31	32.86	86	131	*	**
2. Phlox hoodii	2,3,4	1.06	5.71	14	106	*	**
3. Carex geyeri	2	0.90	10.00	14	90	*	**
4. Lupinus sp.	2,1	0.51	15.71	43	51	*	**
5. Agropyron smithii	2	0.44	14.29	43	44	*	**
6. Oryzopsis hymenoides	2	0.27	20.00	43	27	*	**
7. Agropyron sp.	2	0.26	35.71	71	26	*	**
8. Elymus cinereus	2	0.26	8.57	14	26	*	**
9. Phlox multiflora	4,2,3	0.24	11.43	28	24	*	**
10. Penstemon sp.	2	0.23	15.71	28	23	*	**
11. Trifolium gymnocarpon	2,3	0.14	17.14	28	14	*	**
12. Koeleria gracilis	2	0.11	12.86	43	11	*	**
13. Descurainia richardsonii	2	0.11	11.48	14	11	*	**
14. Cryptantha sericea	2,3	0.11	7.14	28	11	*	**
15. Eriogonum umbellatum	2	0.11	5.71	14	11	*	**
16. Carex sp.	2	0.11	4.29	14	11	*	**
17. Erigeron sp.	3,2	0.09	17.14	28	9	*	**
18. Senecio multilobatus	2	0.09	5.71	14	9	*	**
19. Hedysarum boreale	2,3	0.09	2.86	28	9	*	**
20. Stipa sp.	2	0.08	8.57	43	8	*	**

Table 2.3-24 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/na	Density #/Quad.	Sociability
			MAY-JUNE 1975 (SUMMARY OF 7 TRANSECTS) CONTINUED				
21. Hordeum jubatum	2	0.07	1.43	14	7	*	**
22. Poa sandbergii	2	0.05	4.29	14	5	*	**
23. Solidago sp.	2	0.04	11.43	28	4	*	**
24. Lomatium sp.	2,3	0.03	12.86	28	3	*	**
25. Bromus sp.	1	0.03	2.86	14	3	*	**
26. Viola nuttallii	5	0.03	2.86	14	3	*	**
27. Phlox longifolia	3,4,2	0.02	8.57	28	2	*	**
28. Lepidium montanum	2	0.02	2.86	14	2	*	**
29. Senecio sp.	2	0.02	2.86	28	2	*	**
30. Haplopappus nuttallii	2	0.02	1.43	14	2	*	**
31. Castilleja chromosa	3	0.01	10.00	28	1	*	**
32. Crepis acuminata	2	0.01	7.14	14	1	*	**
33. Sitanion longifolium	*	0.01	7.14	28	1	*	**
34. Taraxacum officinale	2	0.01	4.28	28	1	*	**
35. Eriogonum ovalifolium	2,3	0.01	1.43	14	1	*	**
36. Euphorbia robusta	2	0.01	1.43	14	1	*	**
37. Haplopappus acaulis	2	0.01	1.43	14	1	*	**
38. Poa cusickii	3	0.01	1.43	14	1	*	**
39. Sisymbrium sp.	2,4	0.00	14.29	57	0	*	**
40. Chenopodium fremonti	2	0.00	7.14	14	0	*	**
41. Sphaeralcea coccinea	2	0.00	5.72	43	0	*	**
42. Agoseris glauca	2	0.00	4.29	28	0	*	**
43. Phlox sp.	2	0.00	4.29	14	0	*	**
44. Astragalus sp.	3,4,2	0.00	2.86	28	0	*	**
45. Bromus tectorum	2	0.00	2.86	28	0	*	**
46. Calochortus sp.	2	0.00	2.86	14	0	*	**
47. Delphinium nelsonii	2	0.00	4.29	28	0	*	**
48. Festuca sp.	2	0.00	2.86	14	0	*	**
49. Oenothera sp.	2	0.00	2.86	14	0	*	**
50. Zygadenus venenosus	2	0.00	2.86	14	0	*	**
51. Androsace septentrionalis	3	0.00	1.43	14	0	*	**
52. Claytonia sp.	3	0.00	1.43	14	0	*	**
53. Cymopterus sp.	3	0.00	1.43	14	0	*	**
54. Geranium sp.	2	0.00	1.43	14	0	*	**
55. Ipomopsis sp.	2	0.00	1.43	14	0	*	**
56. Kochia iranica	2	0.00	1.43	14	0	*	**
57. Lepidium sp.	2	0.00	1.43	14	0	*	**

Table 2.3-24 (Continued)

	Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			MAY-JUNE 1975 (SUMMARY OF 7 TRANSECTS) CONTINUED					
58.	Mertensia sp.	3	0.00	1.43	14	0	*	**
59.	Physaria sp.	2	0.00	*	*	0	*	**
60.	Physaria floribunda	2	0.00	2.86	28	0	*	**
61.	Plantago sp.	2	0.00	1.43	14	0	*	**
62.	Sisymbrium altissimum	2	0.00	1.43	14	0	*	**
	Unknown	*	0.16	12.86	**	16	*	**
	All Species		7.09			709		
			JULY 1975 (SUMMARY OF 7 TRANSECTS)					
1.	Lupinus caudatus	5,3,6,7	2.47	30.00	43	247	0.8	2.8
2.	Poa sandbergii	2	1.96	30.00	43	196	*	**
3.	Carex geyeri	2	1.67	12.86	14	167	*	**
4.	Agropyron smithii	5,2	1.24	38.57	86	124	0.0	0.1
5.	Phlox multiflora	6	0.77	5.71	14	77	0.3	5.5
6.	Galium boreale	2	0.70	12.86	14	70	2.9	22.4
7.	Elymus cinereus	2	0.70	7.14	14	70	*	**
8.	Stipa columbiana	5	0.59	12.86	14	59	*	**
9.	Penstemon caespitosus	5	0.51	14.29	14	51	0.7	4.7
10.	Trifolium gymnocarpon	2,6	0.44	22.86	29	44	1.2	5.2
11.	Poa fendleriana	5	0.44	12.86	43	44	*	**
12.	Oryzopsis hymenoides	5,2,3,4	0.41	15.71	43	41	*	**
13.	Eriogonum umbellatum	4	0.40	10.00	14	40	0.6	5.6
14.	Sitanion longifolium	5,6,7	0.36	17.14	43	36	*	**
15.	Hedysarum boreale	4,5	0.36	1.43	14	36	0.0	2.0
16.	Phlox hoodii	2	0.31	11.43	28	31	0.3	2.9
17.	Stipa comata	6,5	0.30	11.43	43	30	*	**
18.	Geranium richardsonii	3	0.30	8.57	14	30	0.2	2.0
19.	Erigeron ostonii	7,6	0.27	28.86	43	27	0.8	3.6
20.	Phlox longifolia	6,4,2,3,7	0.26	30.00	57	26	1.4	4.7
21.	Lepidium perfoliatum	2	0.24	12.86	14	24	0.9	7.2
22.	Sphaeralcea coccinea	2,4	0.21	15.71	43	21	0.7	4.2
23.	Erigeron speciosus	2	0.20	4.29	14	20	0.8	18.7
24.	Comandra umbellata	4	0.20	4.29	14	20	0.4	8.3
25.	Cryptantha torreyana	2,6,3	0.17	14.29	57	17	0.5	3.3

Table 2.3-24 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			JULY 1975 (SUMMARY OF 7 TRANSECTS)				
26. Crepis acuminata	2,3,4,6	0.17	12.86	29	17	0.3	2.0
27. Penstemon fremontii	3	0.16	7.14	29	16	0.1	1.8
28. Chenopodium fremontii	2,3	0.11	15.71	57	11	0.8	5.1
29. Astragalus tenellus	4	0.11	5.71	14	11	0.1	2.2
30. Castilleja chromosa	4,5	0.09	7.14	29	9	0.1	1.2
31. Poa pratensis	2	0.09	2.86	14	9	*	**
32. Achillea lanulosa	2	0.07	4.29	14	7	0.2	4.3
33. Bromus tectorum	5,4	0.07	2.86	29	7	*	**
34. Agoseris glauca	6	0.06	10.00	29	6	0.2	2.3
35. Erogeron pumilus	5,6	0.06	4.29	29	6	0.1	1.3
36. Helianthella uniflora	2	0.06	2.86	14	6	0.1	4.5
37. Koeleria gracilis	2	0.04	4.29	29	4	*	**
38. Agropyron sp.	4	0.04	1.43	14	4	*	**
39. Agropyron trachycaulum	2,4,5	0.03	11.43	43	3	*	**
40. Osmorhiza depauperata	2	0.03	1.43	14	3	0.0	2.0
41. Chenopodium leptophyllum	3	0.01	12.86	29	1	0.3	2.6
42. Erysimum asperum	7,5	0.01	7.14	43	1	0.1	1.4
43. Descurainia pinnata	5,2	0.01	5.71	29	1	0.2	3.7
44. Taraxacum officinale	2	0.01	5.71	29	1	0.1	2.0
45. Astragalus chamaeleuce	2	0.01	4.29	14	1	0.1	1.3
46. Ipomopsis aggregata	2	0.01	4.29	29	1	0.1	1.7
47. Physaria floribunda	2,5	0.01	4.29	43	1	0.1	1.7
48. Ipomopsis congesta	4	0.01	2.86	14	1	0.0	1.0
49. Zygadenus venenosus	2,6	0.01	2.86	14	1	0.0	1.0
50. Calochortus nuttallii	3	0.01	1.43	14	1	0.0	1.0
51. Haplopappus nuttallii	4	0.01	1.43	14	1	0.0	1.0
52. Kochia iranica	2	0.01	1.43	14	1	0.0	1.0
53. Lappula redowskii	4,7	0.00	5.71	29	0	0.1	1.0
54. Astragalus diversifolius	2	0.00	2.86	14	0	0.0	1.0
55. Astragalus purshii	2	0.00	1.43	14	0	0.0	1.0
56. Collomia linearis	2	0.00	1.43	14	0	0.0	1.0
57. Eriogonum ovalifolium	4	0.00	1.43	14	0	0.0	1.0
58. Lupinus [illegible]	2	0.00	1.43	14	0	0.0	**
59. Polygonum douglasense	2	0.00	1.43	14	0	0.0	1.0
60. Senecio multilobatus	2	0.00	1.43	14	0	0.0	1.0
All Species		100.00			1870		

Table 2.3-24 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			SEPTEMBER 1975 (SUMMARY OF 6 TRANSECTS)				
1. Carex geyeri	2	2.93	15.00	17	293	*	**
2. Poa sandbergii	2	1.45	40.00	50	145	*	**
3. Stipa columbiana	7	1.10	15.00	17	110	*	**
4. Phlox multiflora	8	1.03	6.67	17	103	0.6	8.3
5. Galium boreale	2	0.80	15.00	17	80	2.6	17.3
6. Koeleria gracilis	2,7	0.72	26.67	50	72	*	**
7. Lupinus caudatus	2,8	0.72	25.00	50	72	0.5	2.0
8. Penstemon caespitosus	2,8	0.65	23.33	33	65	0.9	3.8
9. Poa canbyi	2	0.47	10.00	17	47	*	**
10. Oryzopsis hymenoides	2,7	0.38	23.33	67	33	*	**
11. Moss	2	0.35	18.33	67	35	*	**
12. Eriogonum umbellatum	2	0.35	10.00	33	35	0.6	5.8
13. Hedysarum boreale	2	0.33	1.67	17	33	0.1	6.0
14. Agropyron smithii	2,7	0.27	21.67	50	27	*	**
15. Comandra umbellata	2	0.27	5.00	17	27	0.4	8.0
16. Erigeron eatonii	2,8	0.23	20 00	33	23	1.0	4.9
17. Lepidium montanum	6	0.22	10.00	17	22	1.1	10.5
18. Stipa comata	2	0.20	13 33	33	20	*	**
19. Phlox hoodii	2	0.18	13.33	33	18	0.4	3.1
20. Erigeron speciosus	6	0.17	8.33	17	17	0.6	7.6
21. Geranium richardsonii	7	0.15	5.00	17	15	0.1	1.7
22. Helianthella uniflora	7	0.13	3.33	17	13	0.2	6.5
23. Sphaerulrea coccinea	2	0.10	18.33	50	10	0.7	4.0
24. Chenopodium leptophyllum	2,6,7	0.10	16.67	50	10	0.6	3.5
25. Cryptantha sericea	2	0.10	11.67	33	10	0.6	5.3
26. Sitanion longifolium	8	0.07	11.67	50	7	*	**
27. Agropyron trachycalum	2,7	0.07	10.00	50	7	*	**
28. Agropyron spicatum	6	0.07	1.67	17	7	*	**
29. Ligusticum porteri	2	0.07	1.67	17	7	0.1	3.0
30. Ipomopsis aggregata	2	0.05	3.33	17	5	0.1	1.5
31. Astragalus tenellus	2	0.05	3.33	17	5	0.1	1.5
32. Bromus tectorum	8	0.03	5.00	17	3	*	**
33. Achillea lanulosa	2	0.03	3.33	17	3	0.2	6.0
34. Ipomopsis congesta	5	0.02	3.33	17	2	0.1	1.5
35. Physaria floribunda	2	0.02	3.33	33	2	0.1	1.5

Table 2.3-24 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		SEPTEMBER 1975 (SUMMARY OF 6 TRANSECTS) CONTINUED					
36. Antennaria pulcherrima	2	0.02	3.33	17	2	0.0	1.0
37. Phlox longifolia	7	0.02	1.67	17	2	0.1	5.0
38. Haplopappus nuttallii	2	0.02	1.67	17	2	0.0	2.0
39. Euphorbia fendleri	2	0.02	1.67	17	2	0.0	1.0
40. Kochia iranica	6	0.02	1.67	17	2	0.0	1.0
41. Astragalus chamaeleuce	2	0.00	3.33	17	0	0.0	1.0
42. Sisymbrium linifolium	1	0.0.00	1.67	17	0	0.0	2.0
43. Castilleja linariaefolia	2	0.00	1.67	17	0	0.0	1.0
All Species		13.98			139		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-25 Species encountered in the shrub stratum of the upland sagebrush and bottomland sagebrush associations for RBOSP

Species	Percent Cover	Percent Frequency	Density #/ha
UPLAND SAGEBRUSH			
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 16 TRANSECTS)			
1. Artemisia tridentata	21.56	97.50	5581
2. Amelanchier utahensis	3.55	52.50	621
3. Symphoricarpos oreophilus	1.77	48.75	621
4. Chrysothamnus viscidiflorus	1.53	93.75	1954
5. Gutierrezia sarothrae	0.34	21.25	156
6. Purshia tridentata	0.28	13.75	53
7. Tetradymia canescens	0.13	21.25	178
8. Cercocarpus montanus	0.13	1.25	16
9. Pinus edulis	0.10	21.25	26
10. Juniperus osteosperma	0.06	15.00	28
11. Opuntia polyacantha	0.05	20.00	64
12. Eurotia lanata	0.09	8.75	33
13. Unknown shrub	0.02	1.25	3
14. Chrysothamnus nauseosus	0.00	2.50	9
15. Rosa woodsii	0.00	1.25	2
All Species	29.56		9345
BOTTOMLAND SAGEBRUSH			
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 9 TRANSECTS)			
1. Artemisia tridentata	31.14	100.00	10578
2. Symphoricarpos oreophilus	4.59	46.67	1167
3. Chrysothamnus nauseosus	2.94	42.22	1128
4. Chrysothamnus viscidiflorus	2.70	57.78	5198
5. Sarcobatus vermiculatus	0.90	20.00	276
6. Amelanchier utahensis	0.44	20.00	115
7. Atriplex confertifolia	0.08	11.11	89
8. Opuntia polyacantha	0.04	15.56	150
9. Eurotia lanata	0.03	8.89	85
10. Tetradymia canescens	0.02	11.11	70
11. Atriplex canescens	0.01	11.11	9
12. Ribes cereum	0.00	6.67	15
All Species	42.89		18,880

*Value not recorded in the field because of sampling procedure or absence of species.

Table 2.3-26 Species encountered in the herbaceous stratum in the upland sagebrush and bottomland sagebrush associations for RBOSP

Species	Percent Cover	Percent Frequency	Density #/Quad.(.5m^2)
UPLAND SAGEBRUSH			
JULY 1975 (SUMMARY OF 4 TRANSECTS)			
1. Lupinus caudatus	4.33	42.50	2.9
2. Poa sandbergii	3.43	50.00	*
3. Carex geyeri	2.93	22.50	*
4. Phlox multiflora	1.35	10.00	1.1
5. Galium boreale	1.23	22.50	10.1
6. Stipa columbiana	1.03	22.50	*
7. Stipa comata	0.98	17.50	*
8. Agropyron smithii	0.93	52.50	*
9. Penstemon caespitosus	0.90	25.00	2.4
10. Trifolium gymnocarpon	0.78	40.00	4.1
	17.89		20.6
Total Number of Herbaceous Species 51			
Total Cover of Herbaceous Species	26.34		
BOTTOMLAND SAGEBRUSH			
JULY 1975 (SUMMARY OF 3 TRANSECTS)			
1. Agropyron smithii	1.67	20.00	*
2. Elymus cinereus	1.63	16.67	*
3. Sitanion longifolium	0.83	40.00	*
4. Lepidium perfoliatum	0.57	30.00	4.3
5. Chenopodium fremontii	0.20	26.67	2.4
6. Oryzopsis hymenoides	0.13	13.33	*
7. Chenopodium leptophyllum	0.03	30.00	1.5
8. Descurainia pinnata	0.03	13.33	1.0
9. Erysimum asperum	0.03	10.00	3.3
10. Bromus tectorum	0.03	3.33	*
	5.15		12.5
Total Number of Herbaceous Species 21			
Total Cover of Herbaceous Species	5.18		

*Value not recorded in the field because of sampling procedure or absence of species.

Table 2.3-27 Species encountered in the shrub-tree seedling stratum in the greasewood type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative State (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
OCTOBER 1974 (SUMMARY OF 7 TRANSECTS)										
1. Artemisia tridentata	*	*	*	26.45	100.00	100	2645	10313	*	**
2. Sarcobatus vermiculatus	*	*	*	18.38	100.00	100	1838	4290	*	**
3. Chrysothamnus viscidiflorus	*	*	*	0.44	25.00	29	44	806	*	**
4. Chrysothamnus nauseosus	*	*	*	0.21	21.43	57	21	214	*	**
5. Atriplex canescens	*	*	*	0.01	21.43	14	1	44	*	**
6. Atriplex confertifolia	*	*	*	0.00	14.29	43	0	131	*	**
7. Juniperus osteosperma	*	*	*	0.00	3.57	14	0	4	*	**
All Species				45.49			4549	15802		
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 6 TRANSECTS)										
1. Sarcobatus vermiculatus	2	2	6	29.53	100.00	100	2953	4556	0.65	550
2. Artemisia tridentata	2	3	5	10.41	90.00	100	1041	2981	0.16	76
3. Chrysothamnus nauseosus	2	3	*	3.71	46.67	50	371	1742	0.15	29
4. Chrysothamnus viscidiflorus	2	*	4,5	0.14	26.67	50	14	111	0.00	**
5. Atriplex confertifolia	2	2	*	0.07	26.67	33	7	114	0.04	0
All Species				43.86			4386	9504		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-28 Species encountered in the herbaceous stratum in the greasewood type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative state (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity
7. Seasonal senescence
8. Dead or dormant

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		OCTOBER 1974 (SUMMARY OF 7 TRANSECTS)					
1. Bromus tectorum	*	1.87	20.00	29	187	*	**
2. Lepidium perfoliatum	*	1.86	11.43	14	186	*	**
3. Agropyron trachycaulum	*	0.70	32.86	57	70	*	**
4. Kochia iranica	*	0.36	2.86	14	36	*	**
5. Agropyron smithii	*	0.07	1.43	14	7	*	**
6. Elymus cinereus	*	0.07	1.43	14	7	*	**
7. Sitanion longifolium	*	0.06	7.14	29	6	*	**
8. Physaria floribunda	*	0.01	1.43	14	1	*	**
9. Lappula redowskii	*	0.00	1.43	14	0	*	**
All Species		5.00			500		
		MAY-JUNE 1975 (SUMMARY OF 3 TRANSECTS)					
1. Lappula redowskii	2,3	3.05	56.67	100	305	*	**
2. Chenopodium fremontii	2,3	2.40	76.67	100	240	*	**
3. Agropyron desertorum	2	2.35	30.00	33	235	*	**
4. Descurainia pinnata	3	1.33	80.00	100	133	*	**
5. Agropyron smithii	2	1.05	43.33	100	105	*	**
6. Bromus tectorum	2	0.38	26.67	33	38	*	**
7. Agropyron trachycaulum	2	0.30	30.00	67	30	*	**
8. Poa sandbergii	2	0.10	20.00	33	10	*	**
9. Elymus cinereus	2	0.08	6.67	33	8	*	**
10. Chenopodium leptophyllum	2	0.00	6.67	33	0	*	**
11. Lepidium perfoliatum	2	0.00	6.67	33	0	*	**
All Species		11.54			1154		

Table 2.3-28 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		JULY 1975 (SUMMARY OF 3 TRANSECTS)					
1. Kochia iranica	2	9.40	36.67	67	940	35.1	95.7
2. Chenopodium album	3	6.47	63.33	67	647	20.4	32.2
3. Agropyron smithii	2	5.30	53.33	100	530	*	**
4. Chenopodium fremontii	3,2	3.47	46.67	67	347	8.3	17.8
5. Agropyron desertorum	2	2.60	30.00	33	260	*	**
6. Sitanion longifolium	7	1.20	6.67	33	120	*	**
7. Descurainia pinnata	2	0.37	20.00	33	37	1.5	7.5
8. Poa sandbergii	2	0.17	6.67	33	17	*	**
9. Agropyron trachycaulum	2	0.17	3.33	33	17	*	**
10. Elymus cinereus	5	0.13	3.33	33	13	*	**
11. Lappula redowskii	7	0.03	13.33	33	3	0.5	3.8
12. Bromus tectorum	5	0.00	3.33	33	0	*	**
13. Phlox longifolia	2	0.00	3.33	33	0	0.0	1.0
All Species		29.31			2931		
		SEPTEMBER 1975 (SUMMARY OF 3 TRANSECTS)					
1. Kochia iranica	4	5.23	33.33	33	523	30.5	91.4
2. Chenopodium fremontii	5,6,7	3.97	90.00	100	397	31.7	35.2
3. Bromus tectorum	8	3.43	30.00	33	343	*	**
4. Agropyron desertorum	7	2.13	33.33	33	213	*	**
5. Agropyron smithii	2	1.80	33.33	33	180	*	**
6. Poa sandbergii	2	0.13	13.33	33	13	*	**
7. Agropyron trachycaulum	2,7	0.13	10.00	67	13	*	**
8. Elymus cinereus	2	0.10	6.67	33	10	*	**
9. Lepidium montanum	2	0.03	3.33	33	3	0.2	5.0
10. Sitanion longifolium	8	0.03	3.33	33	3	*	**
11. Lappula redowskii	8	0.00	3.33	33	0	0.2	6.0
12. Oryzopsis hymenoides	2	0.00	3.33	33	0	*	**
13. Salsola iberica	2	0.00	3.33	33	0	0.0	1.0
All Species		16.73			1673		

*Value not recorded.

**Value cannot be calculated.

Table 2.3-29 Species encountered in the shrub-tree seedling stratum in the rabbitbrush type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative State (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology			Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
	May-June	July	September							
OCTOBER 1974 (SUMMARY OF 5 TRANSECTS)										
1. Chrysothamnus nauseosus	*	*	*	36.14	100.00	100	3614	7400	*	**
2. Artemisia tridentata	*	*	*	3.36	40.00	40	336	1650	*	**
3. Sarcobatus vermiculatus	*	*	*	0.45	50.00	60	45	144	*	**
4. Atriplex canescens	*	*	*	0.00	5.00	20	0	6	*	**
All Species				39.95			3995	9200		
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 8 TRANSECTS)										
1. Chrysothamnus viscidiflorus	2	3	2,4,5	21.27	60.00	63	2127	3637	0.02	275
2. Chrysothamnus nauseosus	2	3	4,5	14.47	77.50	88	1447	5752	0.34	1931
3. Sarcobatus vermiculatus	2	*	2,6,7	1.95	35.00	50	195	419	0.00	0
4. Artemisia tridentata	2	3	4,5,6	1.78	75.00	75	178	4025	0.00	0
5. Ribes aureum	2	*	*	0.00	2.50	13	0	1	*	**
6. Symphoricarpos oreophilus	2	*	*	0.00	2.50	13	0	1	*	**
All Species				39.47			3947	13835		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-30 Species encountered in the herbaceous stratum in the rabbitbrush type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative state (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity
7. Seasonal senescence
8. Dead or dormant

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		OCTOBER 1974 (SUMMARY OF 5 TRANSECTS)					
1. Elymus cinereus	*	5.87	44.00	80	587	*	**
2. Kochia iranica	*	1.20	10.00	20	120	*	**
3. Poa pratensis	*	0.96	14.00	20	96	*	**
4. Agropyron smithii	*	0.74	14.00	20	74	*	**
5. Agropyron spicatum	*	0.48	12.00	20	48	*	**
6. Agropyron trachycaulum	*	0.14	4.00	20	14	*	**
7. Lepidium perfoliatum	*	0.11	4.00	20	11	*	**
8. Bromus tectorum	*	0.03	4.00	20	3	*	**
9. Aster sp.	*	0.03	2.00	20	3	*	**
All Species		9.56			956		
		MAY-JUNE 1975 (SUMMARY OF 2 TRANSECTS)					
1. Elymus cinereus	2	20.05	95.00	100	2005	*	**
2. Bromus sp.	2	1.40	10.00	50	140	*	**
3. Poa sp.	2	1.33	35.00	50	133	*	**
4. Poa pratensis	2,3	1.08	25.00	50	108	*	**
5. Bromus tectorum	3,4	0.95	35.00	50	95	*	**
6. Sisymbrium linifolium	3,4,5	0.38	40.00	50	38	*	**
7. Artemisia ludoviciana	2	0.20	15.00	50	20	*	**
8. Scirpus acutus	2	0.08	15.00	50	8	*	**
9. Agropyron smithii	2	0.05	15.00	50	5	*	**
10. Collinsia parviflora	3	0.00	10.00	50	0	*	**
11. Taraxacum officinale	2	0.00	10.00	50	0	*	**
12. Chorispora tenella	3,4	0.00	5.00	50	0	*	**
13. Penstemon sp.	2	0.00	5.00	50	0	*	**
14. Unknown Cruciferae	*	0.00	30.00	**	0	*	**
All Species		25.52			2552		

Table 2.3-30 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
JULY 1975 (SUMMARY OF 2 TRANSECTS)							
1. Elymus cinereus	5	36.60	95.00	100	3660	*	**
2. Poa pratensis	5	3.90	45.00	50	390	*	**
3. Agropyron smithii	5	1.00	25.00	50	100	*	**
4. Agropyron repens	5	100	5.00	50	100	*	**
5. Juncus balticus	5	0.70	10.00	50	70	*	**
6. Artemisia ludoviciana	2	0.25	10 00	50	25	0.2	2.0
7. Chenopodium fremontii	2	0.15	25.00	50	15	0.6	2.4
8. Descurainia pinnata	7	0.00	5.00	50	0	0.2	4.0
9. Taraxacum officinale	2	0.00	5.00	50	0	0.1	1.0
10. Unknown	*	0.10	5.00	50	10	0.2	4.0
All Species		43.70			4370		
SEPTEMBER 1975 (SUMMARY OF 2 TRANSECTS)							
1. Elymus cinereus	2,6,7	17.83	80.00	100	1783	*	**
2. Bromus tectorum	8	3.40	36.67	67	340	*	**
3. Poa nemoralis	6,7	2.50	40.00	67	250	*	**
4. Agropyron smithii	2	1.73	30.00	67	173	*	**
5. Agropyron tracnycaulum	7	1.00	3.33	33	100	*	**
6. Distichlis stricta	5	0.80	13.33	33	80	*	**
7. Juncus arcticus	5	0.63	10.00	33	63	*	**
8. Sitanion longifolium	8	0.47	6.67	33	47	*	**
9. Chenopodium fremontii	7,2,4	0.13	23.33	100	13	0.7	3.1
10. Lepidium montanum	5	0.07	6.67	33	7	0.1	2.0
11. Artemisia ludoviciana	6	0.07	3.33	33	7	0.1	3.0
12. Aster campestris	4	0.03	3.33	33	3	0.1	2.0
All Species		28.66			2865		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-31 Species encountered in the mature tree stratum in the bald type for RBOSP

Species	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Basal Area m^2/ha
OCTOBER 1974 (SUMMARY OF 4 TRANSECTS)						
1. Juniperus osteosperma	0.00	6.25	25	0	7	0.40
MAY-JUNE, JULY, SEPTEMBER 1975 (SUMMARY OF 11 TRANSECTS)						
1. Pinus edulis	0.00	3.64	36	0	5	3.82

Table 2.3-32 Species encountered in the shrub-tree seedling stratum in the bald type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative State (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
OCTOBER 1974 (SUMMARY OF 4 TRANSECTS)										
1. Artemisia tridentata	*	*	*	1.31	25.00	25	131	403	*	**
2. Chrysothamnus viscidiflorus	*	*	*	0.00	12.50	25	0	56	*	**
3. Pinus edulis	*	*	*	0.00	12.50	25	0	21	*	**
4. Amelanchier utahensis	*	*	*	0.00	6.25	25	0	35	*	**
All Species				1.31			131	514		
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF 11 TRANSECTS)										
1. Amelanchier utahensis	2,2	2	7	3.00	12.73	45	300	41	10.89	33
2. Artemisia frigida	*	*	5,6	0.84	27.27	27	84	27	*	**
3. Gutierrezia sarothrae	*	*	5,6	0.64	16.36	18	64	16	*	**
4. Artemisia tridentata	2	3	5	0.24	29.09	64	24	55	0.01	0
5. Cercocarpus montanus	*	*	6	0.12	5.45	9	12	5	*	**
6. Tetradymia canescens	2	2	2,6	0.11	47.27	73	11	350	*	**
7. Chrysothamnus viscidiflorus	2	*	*	0.03	18.18	27	3	166	*	**
8. Pinus edulis	2	2	*	0.08	9.09	27	8	12	4.19	34
9. Symphoricarpos oreophilus	2	2	7	0.07	12.73	27	7	325	*	**
10. Chrysothamnus viscidiflorus	*	2,3	2,5,6	0.06	23.64	36	6	300	*	**
11. Purshia tridentata	2	*	*	0.05	1.82	9	5	1	0.05	0
12. Eurotia lanata	*	2	*	0.00	3.64	18	0	5	*	**
13. Juniperus osteosperma	*	2	*	0.00	1.82	9	0	2	*	**
All Species				5.29			529	1313		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-33 Species encountered in the herbaceous stratum in the bald type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative state (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity
7. Seasonal senescence
8. Dead or dormant

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		OCTOBER 1974 (SUMMARY OF 4 TRANSECTS)					
1. Agropyron trachycaulum	*	5.68	85.00	100	568	*	**
2. Poa sp.	*	4.67	90.00	100	467	*	**
3. Haplopappus nuttallii	*	3.72	82.50	100	372	*	**
4. Eriogonum sp.	*	1.92	37.50	75	192	*	**
5. Penstemon caespitosus	*	1.39	50.00	75	139	*	**
6. Arenaria sp.	*	0.75	77.50	75	75	*	**
7. Hedysarum boreale	*	0.74	20.00	75	74	*	**
8. Hymenoxys acaulis	*	0.71	67.50	100	71	*	**
9. Gutierrezia sarothrae	*	0.64	40.00	100	64	*	**
10. Koeleria gracilis	*	0.57	45.00	100	57	*	**
11. Phlox sp.	*	0.44	10.00	25	44	*	**
12. Oxytropis lambertii	*	0.30	27.50	50	30	*	**
13. Astragalus sp.	*	0.09	20.00	75	9	*	**
14. Androsace septentrionalis	*	0.09	17.50	50	9	*	**
15. Penstemon sp.	*	0.08	12.50	25	8	*	**
16. Cryptantha sericea	*	0.06	7.50	50	6	*	**
17. Eriogonum alatum	*	0.06	7.50	50	6	*	**
18. Physaria floribunda	*	0.04	12.50	50	4	*	**
19. Erigeron sp.	*	0.04	5.00	50	4	*	**
20. Oryzopsis hymenoides	*	0.03	2.50	25	3	*	**
21. Sphaeralcea coccinea	*	0.02	2.50	25	2	*	**
Unknown Cruciferceae	*	0.02	2.50	25	2	*	**
All Species		22.06			2206		

Table 2.3-33 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		MAY-JUNE 1975 (SUMMARY OF 5 TRANSECTS)					
1. Agropyron trachycaulum	2	1.29	92.00	100	129	*	**
2. Koeleria gracilis	2	1.26	64.00	80	126	*	**
3. Haplopappus acaulis	3	0.74	14.00	20	74	*	**
4. Astragalus spatulatus	2,3	0.61	34.00	20	61	*	**
5. Penstemon caespitosus	2	0.58	48.00	80	58	*	**
6. Poa sandbergii	2	0.51	34.00	40	51	*	**
7. Haplopappus nuttallii	2	0.47	58.00	80	47	*	**
8. Gutierrezia sarothrae	2	0.43	44.00	100	43	*	**
9. Poa sp.	2	0.36	54.00	60	36	*	**
10. Trifolium gymnocarpon	2,3,4	0.34	36.00	100	34	*	**
11. Phlox multiflora	2,4	0.26	10.00	40	26	*	**
12. Artemisia frigida	2	0.24	34.00	60	24	*	**
13. Hymenoxys acaulis	2	0.23	46.00	20	23	*	**
14. Hedysarum boreale	2,3	0.18	16.00	60	18	*	**
15. Phlox longifolia	3,2	0.12	54.00	80	12	*	**
16. Antennaria sp.	2	0.12	8.00	40	2	*	**
17. Lomatium orientale	4,3	0.08	40.00	80	8	*	**
18. Eriogonum lonchopnyllum	2	0.08	28.00	80	8	*	**
19. Kochia iranica	2	0.05	12.00	20	5	*	**
20. Stipa sp.	2	0.05	8.00	40	5	*	**
21. Arenaria eastwoodiae	3	0.04	12.00	20	4	*	**
22. Artemisia sp.	2	0.04	8.00	20	4	*	**
23. Arenaria fendleri	3	0.04	4.00	20	4	*	**
24. Physaria floribunda	3,2	0.03	24.00	80	3	*	**
25. Eriogonum umbellatum	2	0.02	6.00	20	2	*	**
26. Ipomopsis sp.	2	0.02	4.00	20	2	*	**
27. Carex sp.	2	0.02	2.00	20	2	*	**
28. Lupinus sp.	2	0.02	2.00	20	2	*	**
29. Townsendia incana	2	0.02	2.00	20	2	*	**
30. Cymopterus fendleri	3,4	0.01	22.00	10	1	*	**

Table 2.3-33 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
31. Linum lewisii	2	0.01	2.00	20	1	*	**
32. Sitanion longifolium	2	0.00	10.00	20	0	*	**
33. Calochortus sp.	2	0.00	8.00	20	0	*	**
34. Castilleja chromosa	4	0.00	6.00	20	0	*	**
35. Erigeron sp.	2,3	0.00	6.00	60	0	*	**
36. Lomatium juniperum	3,4	0.00	6.00	20	0	*	**
37. Cryptantha sericea	2	0.00	4.00	20	0	*	**
38. Zygadenus venenosus	2,3	0.00	4.00	40	0	*	**
39. Agropyron smithii	2	0.00	2.00	20	0	*	**
40. Crepis acuminata	2	0.00	2.00	20	0	*	**
41. Delphinium nelsonii	2	0.00	2.00	20	0	*	**
42. Solidago sp.	2	0.00	2.00	20	0	*	**
43. Sphaeratcea coccinea	2	0.00	2.00	20	0	*	**
Unknown	*	0.24	34.00	*	24	*	**
All Species		8.51			851		
		JULY 1975 (SUMMARY OF 5 TRANSECTS)					
1. Agropyron trachycaulum	4,2	2.14	70.00	80	214	*	**
2. Koeleria gracilis	2,4	1.96	56.00	100	196	*	**
3. Astragalus spatulatus	5,6	1.73	64.00	100	173	3.8	5.9
4. Penstemon caespitosus	2,5,4,6	1.54	74.00	100	154	2.9	3.9
5. Hymenopappus filifolius	4	1.48	20.00	20	148	1.0	4.8
6. Poa sandbergii	6,2,7	1.46	64.00	100	146	*	**
7. Hymenoxys acaulis	6,7,5,4	1.30	68.00	100	130	4.9	7.1
8. Haplopappus acaulis	6,2	1.02	20.00	40	102	0.9	4.7
9. Stipa comata	2,4,5,3	0.96	34.00	60	96	*	**
10. Agropyron smithii	2	0.90	24.00	60	90	*	**
11. Haploppapus nuttallii	4,3,2	0.84	52.00	100	84	2.4	4.6
12. Eriogonum lonchophyllum	2,5,3	0.72	36.00	100	72	0.8	2.2
13. Artemisia frigida	3,2	0.54	42.00	60	54	0.9	2.1

Table 2.3-33 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
14. Hedysarum boreale	6,5	0.50	14.00	40	50	0.4	3.0
15. Gutierrezia sarothrae	2,3	0.46	24.00	80	46	0.6	2.3
16. Trifolium gymnocarpon	2,7	0.36	28.00	80	36	0.6	2.1
17. Carex geyeri	2	0.30	4.00	20	30	*	**
18. Comandra umbellata	6,5,2	0.28	12.00	60	28	0.5	4.3
19. Phlox longifolia	6,5,7	0.26	44.00	100	26	2.1	4.8
20. Oxytropis lambertii	5,2,4	0.22	10.00	40	22	0.2	1.3
21. Astragalus chamaeleuce	5,6,2	0.21	44.00	100	21	0.7	1.6
22. Artemisia dracunculus	2	0.20	8.00	20	20	0.1	1.3
23. Eriogonum alatum	2,3,4,5	0.18	10.00	20	18	0.2	2.2
24. Sphaeralcea coccinea	6,2	0.18	4.00	40	18	0.4	9.5
25. Linum lewisii	6,3	0.16	8.00	40	16	0.3	3.5
26. Poa fendleriana	7	0.16	4.00	20	16	*	**
27. Phlox nuttallii	2	0.14	10.00	20	14	0.3	3.4
28. Arenaria eastwoodiae	4	0.12	16.00	20	12	0.5	3.1
29. Ipomopsis aggregata	2	0.12	10.00	40	12	0.5	4.5
30. Leptodactylon pungens	2	0.10	4.00	20	10	0.3	6.5
31. Castilleja linariaefolia	3,4	0.08	4.00	20	8	0.1	2.5
32. Physaria floribunda	2	0.06	42.00	100	6	0.8	2.0
33. Oryzopsis hymenoides	2,5,6	0.06	10.00	40	6	*	**
34. Oenothera lavandulaefolia	5	0.06	4.00	20	6	0.1	1.5
35. Erigeron eatonii	2	0.04	6.00	20	4	0.2	2.7
36. Castilleja chromosa	7	0.04	6.00	20	4	0.1	1.7
37. Bromus tectorum	6	0.02	2.00	20	2	*	**
38. Erigeron pumilus	6	0.02	2.00	20	2	0.0	1.0
39. Zygadenus venenosus	7	0.02	2.00	20	2	0.0	1.0
40. Streptanthus cordatus	5	0.01	6.00	20	1	0.1	1.7
41. Androsace septentrionalis	5	0.00	10.00	40	0	0.1	1.4
42. Eupnorbia robusta	2,4	0.00	4.00	40	0	0.1	1.5
43. Astragalus pursii	2	0.00	4.00	20	0	0.0	1.0

Table 2.3-33 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
44. Cryptantha sericea	2,3	0.00	4.00	40	0	0.0	1.0
45. Achillea lanulosa	2	0.00	2.00	20	0	0.1	3.0
46. Lupinus caudatus	2	0.00	2.00	20	0	0.0	1.0
All Species		20.95			2095		
		SEPTEMBER 1975 (SUMMARY OF 2 TRANSECTS)					
1. Poa sandbergii	2	4.00	95.00	100	400	*	**
2. Haplopappus acaulis	2	3.30	85.00	100	330	4.8	5.6
3. Agropyron trachycaulum	2,7	2.50	90.00	100	250	*	**
4. Penstemon caespitosus	2	1.90	70.00	100	190	4.3	6.1
5. Haplopappus nuttallii	2	1.40	80.00	100	140	4.7	5.9
6. Astragalus spatulatus	2	1.00	70.00	100	100	3.2	4.5
7. Eriogonum lonchophyllum	6,2	0.65	40.00	100	65	1.1	2.6
8. Artemisia dracunculus	6	0.50	15.00	50	50	0.5	3.0
9. Phlox hoodii	2	0.45	15.00	50	45	1.1	7.0
10. Arenaria eastwoodiae	2	0.35	45.00	50	35	1.4	3.1
11. Hymenoxys acaulis	2	0.20	30.00	50	20	1.3	4.3
12. Ipomopsis aggregata	1,2	0.20	20.00	100	20	0.7	3.5
13. Linum lewisii	7	0.20	5.00	50	20	0.2	4.0
14. Astragalus purshii	2	0.15	55.00	100	15	0.9	1.6
15. Erigeron pumilis	2,8	0.10	10.00	100	10	0.2	1.5
16. Comandra umbellata	2	0.10	5.00	50	10	0.4	7.0
17. Lygodesmia juncea	2	0.05	10.00	50	5	0.3	3.0
18. Leptodactylon pungens	2	0.05	5.00	50	5	0.1	2.0
19. Hedysarum boreale	2	0.05	5.00	50	5	0.1	1.0
20. Oxytropis lambertii	2	0.05	5.00	50	5	0.1	1.0
21. Sphaeralcea coccinea	2	0.05	5.00	50	5	0.1	1.0
22. Physaria floribunda	1	0.00	15.00	50	0	0.3	1.7
23. Cryptantha sericea	2	0.00	5.00	50	0	0.1	1.0
All Species		17.25			1725		

Table 2.3-34 Species encountered in the mature tree stratum in the shadscale type for RBOSP

Species	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Basal Area m^2/ha
			OCTOBER 1974 (SUMMARY OF 4 TRANSECTS)			
1. Juniperus osteosperma	.00	25.00	25	0	278	5.45
			MAY-JUNE, JULY, SEPTEMBER 1975 (SUMMARY OF TRANSECTS)			
1. Juniperus osteosperma	2.66	24.00	20	266	30	2.06

Table 2.3-35. Species encountered in the shrub-tree seedling stratum in the shadscale type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative state (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
OCTOBER 1974 (SUMMARY OF 7 TRANSECTS)										
1. Chrysothamnus viscidiflorus	*	*	*	5.29	68.75	75	529	2340	*	**
2. Chrysothamnus nauseosus	*	*	*	3.67	68.75	75	367	833	*	**
3. Atriplex confertifolia	*	*	*	3.54	87.50	100	354	1931	*	**
4. Artemisia tridentata	*	*	*	1.91	62.50	100	191	917	*	**
5. Artemisia frigida	*	*	*	1.13	50.00	75	113	2229	*	**
6. Amelanchier utahensis	*	*	*	0.29	6.25	25	29	28	*	**
7. Sarcobatus vermiculatus	*	*	*	0.13	12.50	25	13	76	*	**
8. Tetradymia canescens	*	*	*	0.00	18.75	50	0	69	*	**
9. Pinus edulis	*	*	*	0.00	6.25	25	0	7	*	**
10. Rhus trilobata	*	*	*	0.00	6.25	25	0	7	*	**
All Species				15.96			1596	8437		
MAY-JUNE, JULY, SEPTEMBER 1975 (SUMMARY OF 5 TRANSECTS)										
1. Artemisia tridentata	2	3	5	7.49	80.00	100	749	1327	0.17	340
2. Atriplex confertifolia	2	2	2	3.92	96.00	100	392	2343	0.01	23
3. Pinus edulis	2	*	*	0.45	16.00	40	45	20	*	**
4. Tetradymia canescens	2	2	2,3	0.42	28.00	80	42	363	*	**
5. Chrysothamnus viscidiflorus	2	3	4,5	0.38	52.00	100	38	537	0.01	4
6. Sarcobatus vermiculatus	2	2	6,2	0.29	32.00	80	29	157	0.70	144
7. Atriplex canescens	2	2	*	0.25	24.00	40	25	263	0.01	4
8. Artemisia frigida	*	*	5	0.25	20.00	20	25	263	*	**
9. Chrysothamnus nauseosus	2	3	4,5	0.21	56.00	80	21	250	*	**

Table 2.3-35 (Continued)

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (ft^3)	Volume m^3/ha
MAY-JUNE, JULY, SEPTEMBER 1975 (SUMMARY OF 5 TRANSECTS)										
10. Eurotia lanata	*	3	*	0.05	12.00	20	5	70	*	**
11. Symphoricarpos oreophilus	*	2	*	0.00	4.00	20	0	7	*	**
12. Ephedra viridis	2	*	*	0.00	4.00	20	0	3	*	**
All Species				13.71			1371	5603		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-36 Species encountered in the herbaceous stratum in the shadscale type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative state (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		OCTOBER 1974 (SUMMARY OF 4 TRANSECTS)					
1. Oryzopsis hymenoides	*	0.87	22.50	75	87	*	**
2. Eriogonum lonchophyllum	*	0.59	30.00	100	59	*	**
3. Gutierrezia sarothrae	*	0.56	7.50	25	56	*	**
4. Agropyron trachycaulum	*	0.49	12.50	25	49	*	**
5. Haplopappus nuttallii	*	0.44	15.00	25	44	*	**
6. Bromus tectorum	*	0.30	5.00	50	30	*	**
7. Phlox hoodii	*	0.19	7.50	25	19	*	**
8. Phlox sp.	*	0.16	10.00	25	16	*	**
9. Sitanion longifolium	*	0.08	2.50	25	8	*	**
10. Penstemon sp.	*	0.02	5.00	25	2	*	**
11. Cryptantha sericea	*	0.01	5.00	25	1	*	**
12. Cirsium sp.	*	0.01	2.50	25	1	*	**
All Species		3.72			372		
		MAY-JUNE 1975 (SUMMARY OF 2 TRANSECTS)					
1. Eriogonum lonchophyllum	2	0.28	35.00	50	28	*	**
2. Artemisia frigida	2	0.10	20.00	100	10	*	**
3. Haplopappus nuttallii	2	0.08	25.00	50	8	*	**
4. Oryzopsis hymenoides	2	0.08	15.00	100	8	*	**
5. Sitanion longifolium	2	0.08	5.00	50	8	*	**
6. Ipomopsis sp.	2	0.05	10.00	50	5	*	**
7. Phlox longifolia	2	0.05	10.00	50	5	*	**
8. Chenopodium fremontii	2	0.00	15.00	50	0	*	**
9. Oenothera caespitosa	2	0.00	15.00	50	0	*	**
All Species		0.72			72		

Table 2.3-36 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		JULY 1975 (SUMMARY OF 2 TRANSECTS)					
1. Eriogonum lonchophyllum	2	1.20	40.00	50	120	2.9	7.3
2. Haplopappus nuttallii	4	0.55	20.00	50	55	0.3	1.3
3. Oryzopsis hymenoides	5,2	0.25	25.00	100	25	*	**
4. Chenopodium fremontii	3	0.20	25.00	50	20	1.2	4.6
5. Sphaeralcea coccinea	2	0.15	10.00	50	15	0.7	7.0
6. Oenothera caespitosa	2	0.10	15.00	50	10	0.2	1.3
7. Sitanion longifolium	6,7	0.10	10.00	100	10	*	**
8. Arenaria eastwoodiae	2	0.00	5.00	50	0	0.1	1.0
9. Cryptantha sericea	2	0.00	5.00	50	0	0.1	1.0
All Species		2.55			255		
		SEPTEMBER 1975 (SUMMARY OF 2 TRANSECTS)					
1. Eriogonum lonchophyllum	4	1.10	40.00	50	110	2.2	5.4
2. Haplopappus nuttallii	2	0.35	20.00	50	35	0.4	1.8
3. Oryzopsis hymenoides	2	0.30	25.00	100	30	*	**
4. Sphaeralcea coccinea	2	0.20	15.00	50	20	0.8	5.3
5. Oenothera caespitosa	2	0.10	20.00	50	10	0.2	1.0
6. Chenopodium leptophyllum	8	0.10	10.00	50	10	0.4	4.0
7. Sitanion longifolium	8	0.10	5.00	50	10	*	**
8. Chenopodium fremontii	7	0.05	10.00	50	5	0.3	3.0
All Species		2.30			230		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-37 Species encountered in the mature tree stratum in the riparian type for RBOSP

Species	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Basal Area m^2/ha
MAY-JUNE, JULY, SEPTEMBER 1975 (SUMMARY OF TRANSECTS)						
1. Populus tremuloides	2.62	8.89	11	262	33	0.12

Table 2.3-38 Species encountered in the shrub-tree seedling stratum in the riparian type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative State (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology May-June	Phenology July	Phenology September	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/ha	Mean Volume (m^3)	Volume m^3/ha
OCTOBER 1974 (SUMMARY OF 4 TRANSECTS)										
1. Chrysothamnus viscidiflorus	*	*	*	1.57	25.00	25	157	451	*	**
2. Artemisia tridentata	*	*	*	0.44	18.75	25	44	910		
All Species				2.01			201	1361	*	**
MAY-JUNE, JULY, AND SEPTEMBER 1975 (SUMMARY OF TRANSECTS)										
1. Artemisia tridentata	2	2,3	5,6	4.91	57.78	67	491	1313	*	**
2. Populus tremuloides	*	*	2	3.34	11.11	11	334	198	*	**
3. Symphoricarpos oreophilus	2	2,5	2	3.09	57.78	67	309	1154	*	**
4. Rosa woodsii	2,3	2,3,4,5	2,6	2.84	53.33	56	284	965	*	**
5. Chrysothamnus nauseosus	2	2,3	4,5	2.49	68.89	89	249	559	0.02	0.79
6. Salix interior	*	2	*	2.20	17.78	22	220	44	*	**
7. Ribes aureum	2,3,4	5	6	1.98	46.67	67	198	239	*	**
8. Betulia fontinalis	*	5	*	1.74	11.11	11	174	24	*	**
9. Prunus virginiana	2	5	2,6	0.91	13.33	33	91	105	*	**
10. Ribes inerme	*	5	2,6	0.68	26.89	44	68	245	*	**
11. Amelanchier utahensis	3	5,6	2,5	0.61	26.67	56	61	135	*	**
12. Salix exigua	*	*	2	0.51	2.22	11	51	19	*	**
13. Swida sericea	*	5,6	*	0.15	4.41	11	15	4	*	**
14. Ribes cereum	3	6	6	0.06	11.11	33	6	22	*	**
15. Gutierrezia sarothrae	*	*	5	0.01	2.22	11	1	3	*	**
16. Sarcobatus vermiculatus	2	*	*	0.00	4.44	11	0	21	*	**
17. Atriplex confertifolia	*	*	2	0.00	2.22	11	0	61	*	**
18. Pachystima myrsinites	*	*	2	0.00	2.22	11	0	9	*	**
19. Pseudotsuga menziesii	*	*	*	0.00	2.22	11	0	2	*	**
All Species				25.52			2552	5208		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

Table 2.3-39 Species encountered in the herbaceous stratum in the riparian type for RBOSP

Phenology Key:
1. Emergent (herbaceous); leafing out (shrubs and trees)
2. Vegetative state (no evidence of reproductive stages)
3. Flower bud formation
4. Flowering
5. Seed formation
6. Seed maturity and dissemination
7. Seasonal senescence
8. Dead or dormant

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		OCTOBER 1974 (SUMMARY OF 4 TRANSECTS)					
1. Carex sp.	*	13.88	30.00	50	1388	*	**
2. Poa sp.	*	8.01	22.50	50	801	*	**
3. Scirpus acutus	*	7.14	27.50	75	714	*	**
4. Bromus inermis	*	4.18	10.00	25	418	*	**
5. Ranunculus cymbalaria	*	3.37	30.00	75	337	*	**
6. Roripoa nasturtium-aquaticum	*	2.04	7.50	25	204	*	**
7. Salsola iberica	*	1.98	10.00	25	198	*	**
8. Erigeron sp.	*	1.87	12.50	25	187	*	**
9. Plantago sp.	*	1.68	20.00	50	168	*	**
10. Triglochin maritima	*	1.39	7.50	25	139	*	**
11. Agropyron trachycaulum	*	1.09	10.00	25	109	*	**
12. Hordeum sp.	*	1.05	27.50	75	105	*	**
13. Eragrostis sp.	*	0.76	5.00	25	76	*	**
14. Rumex crispus	*	0.45	12.50	25	45	*	**
15. Artemisia ludoviciana	*	0.40	2.50	25	40	*	**
16. Taraxacum officinale	*	0.35	7.50	25	35	*	**
17. Bromus ciliatus	*	0.28	5.00	25	28	*	**
18. Chenopodium sp.	*	0.27	17.50	50	27	*	**
19. Senecio sp.	*	0.25	2.50	25	25	*	**
20. Elymus cinereus	*	0.21	2.50	25	21	*	**
21. Agropyron smithii	*	0.20	7.50	50	20	*	**
22. Malva sp.	*	0.12	2.50	25	12	*	**
23. Poa interior	*	0.11	2.50	25	11	*	**
24. Agropyron desertorum	*	0.09	2.50	25	9	*	**
25. Bromus tectorum	*	0.06	7.50	50	6	*	**
26. Lepidium perfoliatum	*	0.04	2.50	25	4	*	**
27. Typha latifolia	*	0.02	2.50	25	2	*	**
28. Stipa sp.	*	0.01	2.50	25	1	*	**
Unknown Crucifereae	*	0.10	2.50	25	10	*	**
All Species		51.40			5140		

Table 2.3-39 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		MAY-JUNE 1975 (SUMMARY OF 4 TRANSECTS)					
1. Agropyron repens	2	36.26	70.00	75	3626	*	**
2. Poa pratensis	2,4	3.20	40.00	75	320	*	**
3. Taraxacum officinale	2,3	1.91	45.00	100	191	*	**
4. Carex sp.	2	1.63	7.50	50	163	*	**
5. Artemisia ludoviciana	2	1.13	22.50	25	113	*	**
6. Elymus cinereus	2	0.50	2.50	25	50	*	**
7. Juncus balticus	2	0.40	7.50	75	40	*	**
8. Descurainia pinnata	5,2,3	0.38	30.00	50	38	*	**
9. Zygadenus venenosus	4	0.25	2.50	25	25	*	**
10. Achillea lanulosa	2	0.23	5.00	25	23	*	**
11. Artemisia dracunculus	2	0.23	5.00	25	23	*	**
12. Bromus tectorum	4	0.20	12.50	25	20	*	**
13. Lactuca serriola	2	0.13	2.50	25	13	*	**
14. Chaenactis douglasii	2	0.08	7.50	25	8	*	**
15. Bromus inermis	2	0.08	2.50	25	8	*	**
16. Chenopodium fremontii	2	0.03	15.00	50	3	*	**
17. Sisymbrium linifolium	3	0.03	2.50	25	3	*	**
18. Artemisia frigida	2	0.00	5.00	25	0	*	**
19. Chenopodium album	2	0.00	2.50	25	0	*	**
20. Ericeron eatonii	2	0.00	2.50	25	0	*	**
21. Physaria floribunda	4	0.00	2.50	25	0	*	**
Unknown	*	3.24	22.50	**	324	*	**
All Species		49.91			4991		
		JULY 1975 (SUMMARY OF 5 TRANSECTS)					
1. Agropyron repens	2	13.96	18.00	20	1396	*	**
2. Agropyron smithii	5	13.20	24.00	40	1320	*	**
3. Poa pratensis	4,5	7.18	42.00	80	718	*	**
4. Elymus cinereus	5	7.00	14.00	20	700	*	**
5. Agropyron sp.	4,5	3.80	8.00	40	380	*	**
6. Glyceria striata	4,5	1.28	10.00	40	128	*	**
7. Carex vernacula	2,5	1.20	4.00	40	120	*	**
8. Carex sp.	5	1.00	4.00	20	100	*	**
9. Bromus inermis	2	0.91	4.00	20	91	*	**
10. Ranunculus cymbalaria	2,4,5	0.80	18.00	40	80	0.6	4.6

Table 2.3-39 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
		JULY 1975 (SUMMARY OF 5 TRANSECTS) CONTINUED					
11. Taraxacum officinale	2,6	0.72	36.00	100	72	2.2	6.1
12. Carex nebraskensis	2	0.70	2.00	20	70	*	**
13. Smilacina stellata	5,6	0.60	2.00	20	60	0.3	15.0
14. Hordeum jubatum	5	0.46	4.00	40	46	*	**
15. Descurainia pinnata	6,5	0.34	12.00	40	34	1.5	12.5
16. Kochia iranica	2	0.32	4.00	20	32	2.2	56.0
17. Agropyron trachycaulum	4,5	0.32	12.00	20	32	*	**
18. Juncus balticas	4,5	0.24	6.00	40	24	*	**
19. Solidago sp.	2	0.20	2.00	20	20	0.4	19.0
20. Chenspedium album	3,4	0.18	8.00	40	18	0.2	2.5
21. Achillea lanulosa	4,5,2	0.14	10.00	40	14	0.4	3.6
22. Hordeum brachyantherum	5	0.10	4.00	40	10	*	**
23. Sporobolus airoides	4,5	0.10	4.00	40	10	*	**
24. Rumex utahensis	3	0.10	2.00	20	10	0.0	1.0
25. Chenopodium leptophyllum	4	0.08	2.00	20	8	0.1	3.0
26. Chenopodium fremontii	2,4	0.06	16.00	40	6	0.4	2.3
27. Lactuca serriola	2	0.06	4.00	40	6	0.1	2.0
28. Agropyron spicatum	5	0.04	2.00	20	4	*	**
29. Geranium richardsoni	2	0.04	2.00	20	4	0.1	3.0
30. Galium boreale	2	0.02	2.00	20	2	0.1	2.3
31. Gutierrezia sarothrae	2	0.02	2.00	20	2	0.0	1.0
32. Juncus saximontanus	4,5	0.02	2.00	20	2	*	**
33. Cirsium arvense	2	0.00	2.00	20	0	0.0	1.0
34. Cirsium sp.	2	0.00	2.00	20	0	0.0	1.0
35. Poa ampla	4,5	0.00	2.00	20	0	*	**
36. Unknown	*	1.86	18.00	**	186	*	**
All Species		57.08			5708		

Table 2.3-39 (Continued)

Species	Phenology	Percent Cover	Percent Frequency	Constancy	Cover m^2/ha	Density #/Quad.	Sociability
			SEPTEMBER 1975 (SUMMARY OF 3 TRANSECTS)				
1. Elymus cinereus	7,5	34.47	56.67	67	3447	*	**
2. Agropyron repens	6,2	25.30	46.67	67	2530	*	**
3. Erigeron speciosus	4,5	5.03	36.67	100	503	26.8	73.1
4. Juncus arcticus	6	4.37	10.00	67	437	*	**
5. Agropyron smithii	2	3.80	20.00	67	380	*	**
6. Hordeum brachyantherum	7	1.93	6.67	33	193	*	**
7. Poa nemoralis	6	1.90	16.67	33	190	*	**
8. Carex lanuginosa	5,2	1.67	13.33	100	167	*	**
9. Ranunculus cymbalaria	2,6	1.13	13.33	67	113	4.5	34.0
10. Senecio spartioides	6	0.87	6.67	33	87	7.5	112.5
11. Solidago multiradiata	2	0.67	6.67	67	67	3.4	51.0
12. Chenopodium album	8,5	0.63	10.00	67	63	0.3	2.7
13. Chenopodium hybridum	4,5	0.57	20.00	67	57	0.4	2.2
14. Poa pratensis	7,2	0.57	10.00	67	57	*	**
15. Sitanion longifolium	7	0.47	6.67	67	47	*	**
16. Kochia iranica	4	0.47	3.33	33	47	4.0	120.0
17. Eleocharis macrostachya	6	0.33	3.33	33	33	*	**
18. Taraxacum officinale	2	0.30	23.33	100	30	1.2	5.1
19. Descurainia pinnata	8	0.17	10.00	67	17	0.2	2.3
20. Plantago major	2	0.10	3.33	33	10	0.1	2.0
21. Triglochin maritima	6	0.07	3.33	33	7	0.1	2.0
22. Carex nebraskensis	2	0.03	3.33	33	3	*	**
23. Chenopodium fremontii	3	0.03	3.33	33	3	0.1	3.0
24. Sporobolus airoides	6	0.03	3.33	33	3	*	**
25. Lepidium montanum	2	0.03	3.33	33	3	0.0	1.0
All Species		84.94			8494		

*Value not recorded in the field because of sampling procedure or absence of species.

**Value cannot be calculated because of absence of data.

RAW DATA
FOR
PHYTOSOCIOLOGICAL STUDIES SECTION

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.2.2.1
Project 83
Sheet 1 of 1

Vegetation Type Aspen Transect # A-1 Type Y
T 25 R 100W S 15 1/4 1/4 S N E S W Quadrat Size 1 x ½ m
Aspect (degrees) 58 Slope (degrees) 45% Elevation (feet) 8400
Field Analyst(s) K. Varies & C. Uphoff Date 9-16-75
Site Description NA QA Check RDM 9/23/75

Species	Code #	Phenology Code	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Helianthella uniflora	283	2/30	18	10																		
Chenopodium leptophyllum	286	6/15	4	1																		
Achillea lanulosa	050	2/6	1	tr	2	1													3	1		
Thermopsis montana	117	2/11	4	4			12	8	8	12									2	2		
Geranium richardsoni	084	2/15	1	2			1	2	1	1	2	4										
Galium boreale	083	2/10	12	2	4	1			4	1	7	2	2	1	4	1	7	2				
Bromus marginatus	066	6/54		8		4		2		2		3								22		1
Delphinium Nuttallii	116	2/30			2	4			2	3					1	1						
Viola nuttallii	246	2/4			19	6	3	1											2	1		
Osmorhiza depauperata	279	2/22			6	4	28	2	1	2	6	4	1	2					27	4	6	2
Carex Geyeri	160	2/22				2		10		6		6		7		4				4		4
Valeriana occidentalis	294	2/26					3	2	5	8	12	8	1	tr								
Solidago ~~elliosa~~ spathulata	254	6/105							3	5			4	8								
Erigeron speciosus	275	6/20							2	1	1	1										
Potentilla ~~gracilis~~ pulcherrima	386	2/28									4	8							1	1		
Smilacina stellata	297	2/32									1	1										
Pachystima myrsinites	026	2/4											2	1								
Viola palustris	318	2/20													25	16	27	18			18	20
~~Taraxacum~~ Hieracium officinale	203	2/2																	3	1		

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

C221
Project 83
Sheet 1 of 1

Vegetation Type Aspen Transect # A3 Type P
T 15 R 100W S 33 1/4 1/4 S SWSE Quadrat Size 1 x 1/2 m
Aspect (degrees) 351 Slope (degrees) 40% Elevation (feet) 8520
Field Analyst(s) Voeies & Haynes Date 14 - IX - 25
Site Description NA QA Check rm 9/23/75

Species	Code #	Phenology Code / Ht	1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Thalictrum fendleri	116	6 - 64	2	1			3	1				t							8	2		
Carex geyeri	160	2 - 26		4		1		3		7		6		7		20		10		20		5
Osmorhiza depauperata	279	2 - 6	1	1		t	2	1	5	2	1	1			1	1	4	1	6	1	2	1
Galium boreale	083	2 - 12	3	1			4	1	1	1	21	6	11	3	5	2	5	1	4	2	7	4
Clematis columbiana	298	2 - 50	1	10			1	4										1				
Smilacina stellata	297	2 - 33	1	2			1	2									6	6				
Valeriana occidentalis	294	2 - 15					1	1	3	4	8	6	3	3								
Thermopsis montana	117	6 - 50							3	4	8	4	10	10	5	5	11	12	5	5	2	
Bromus marginatus	066	6 - 50								1						1						
Cirsium arvense	065	1 - 6							1	t	3	3	3	2								
Stipa columbiana	300	6 - 60										3		3		5						
Angelica arguta		- 16																				
Geranium richardsonii	084	2 - 15												1			1	1				
Helianthella uniflora	283	1 - 2											11	2								
Aquilegia caerulea	123	2 - 37																	1	4		

ECI

C 22.1

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 2

Vegetation Type Aspen Non-Permanent Transect # A-5

T 2S R 100W S 22 1/4 1/4 S SWSE Transect Length 100 m

Aspect (degrees) 360° Slope (degrees) 35 Elevation (feet) 8200

Field Analyst(s) JB & DFK Date 9/16/75

Site Description Moist, loamy soil, few fallen trees, grazed (Cattle) QA Check RBM 10/7

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Rowo	041	2, b	32	21	34	21	26	
2 Prvi	023	2	8	3	8	—	2	
3 Amal	034	2	55	39	37	40	23	
~~4 Amut~~								
5 Svor	033	6, 2	66	59	65	33	58	
6 Riin	044	2	4	—	—	—	—	
7 Quga	025	2	—	—	—	1	—	
8								
9 Pamy	026	2	57	48	61	12	9	
10 Potr	~~022~~ 003	2	3	4	5	1	7	

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Rowo	7.60	7.72	9.04	9.07	9.78	9.87	11.53	11.69	12.24	12.35
	8.15	8.81	4.80	4.99	5.70	5.88	7.51	7.62	9.01	9.13
	11.81	12.04	14.65	14.73	14.92	15.20	16.55	16.703	18.09	18.16
	4.15	4.29	15.86	16.07	19.04	19.47	19.61	19.73		
Svor	0.	0.18	0.42	0.47	4.47	4.49	12.55	12.60	13.27	13.3
	13.78	14.03	15.75	15.82	16.75	16.82	16.88	16.	18.55	18.7
	8.35	8.42	8.61	8.72	9.57	9.69	9.68	9.76	9.91	9.98
	10.75	10.87	11.12	11.18	15.81	16.45	16.68	16.84	18.22	18.40
	18.60	18.73	0.57	0.67	0.71	0.76	1.21	1.30	1.78	1.89
	3.68	3.75	6.25	6.59	13.92	14.20	14.51	14.67	15.15	15.30
	15.54	15.61	15.90	15.95	16.98	17.20	17.38	17.55	17.60	17.72
	17.95	17.10	19.04	19.38	19.71	19.80	0.5	0.52	0.98	1.30
	1.50	1.58	1.70	1.79	2.10	2.36	7.20	7.52	6.40	8.10
	8.30	8.35	8.50	8.63	9.0	9.20	9.30	9.42	10.08	10.25

LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

C221
Project 83
Sheet 2 of 2

Vegetation Type Aspen
Non-Permanent Transect # A-5
Date 9/16/75
from 10/7

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Potr	3.65	3.70	3.80	3.91	4.05	4.32	5.74	5.94	6.66	6.75
	15.43	15.80								
Prvi	15.65	16.32	11.61	11.77	1.65	1.83	~~14.47~~			
Syor	10.30	10.61	10.95	11.34	18.90	19.24	19.60	19.73	4.12	4.27
	4.61	4.73	5.10	5.18	5.35	5.41	9.55	9.71	10.25	10.31
	12.61	12.72	14.04	14.19	14.11	14.50	14.95	15.03	16.85	16.93
	17.71	17.94	18.63	18.69	18.85	18.99				
Orac	4.06	4.15	5.18	5.33	5.45	5.50	6.20	11.10	11.35	11.43
	11.70	12.27	13.90	17.44	17.76	18.20	18.41	18.49	18.53	20.00
	0.00	1.50	1.80	4.84	5.43	~~5.70~~ 7.43	8.13	9.29	11.30	13.28
	13.45	13.62	13.76	14.12	14.82	15.04	15.28	15.57	16.12	17.10
	17.33	18.30	18.55	19.50	0.20	0.35	0.40	0.56	1.25	1.30
	1.50	1.58	2.30	2.43	2.53	2.62	2.90	3.01	3.94	4.03
	6.54	13.75	17.45	17.85	0.00	2.20	2.61	3.64	4.88	7.11
	8.30	8.45	8.70	8.80	8.90	16.80	17.80	~~20.00~~ ~~6.00~~	~~0.00~~ 1.95	1.95
	2.73	3.06	7.10	7.18	11.75	12.78	14.42	14.63	15.82	16.09
	18.23	18.32	18.81	20.00						
Pamu	4.83	6.89	11.01	11.09	[illegible]		14.05	14.40	15.80	15.91
	16.06	16.15	19.20	19.24	5.50	5.57	8.90	9.02	12.25	12.22
	2.90	3.00	7.82	7.87	9.08	9.16	9.70	9.73	10.10	10.16
	10.71	10.78								

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LINE-STRIP DATA SHEET
MATURE TREE STRATUM

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Sheet 1 of 1

Vegetation Type Aspen Transect # A-5 Type

T 2S R 100W S 22 1/4 1/4 S SW SE Transect Length 100m

Aspect (degrees) 360 Slope (degrees) 35 Elevation (feet) 8200

Field Analyst(s) JB + DFK Date 9/16/75

Site Description Foamy moist soil, humus QA Check

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Potr	003	2	15	12	4	11	6	normal
2								
3								
4								
5								

42-4.9 → 7.7

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree in	cm	in	cm
Potr	0.00	20.0	0.00	1.10	1.40	3.35	4.60	8.25	6 3/4	17	6 / 5 3/4	15 / 15
	16.05	20.0	0.0	1.45	14.80		15.70	18.30	7 1/2	19	7 1/2 / 7.0	19 / 18
	1.90	5.65	6.40	8.85	8.50	11.40	12.50	19.20	8 1/2	22	7 1/2 / 7 1/4	19 / 18
	4.30	5.20	6.60	13.75					5	13	7 / 6 1/2	17.78 / 17
									4 3/4	11	6 1/4 / 7 3/4	16 / 20
									7 3/4	20	10 3/4 / 6	27 / 15
									5 3/4	15	5 1/2 / 9 3/4	14 / 25
									6 3/4	17	6 1/4 / 6 3/4	16 / 17
									5 1/2	14	4 1/2 / 8 1/2	11 / 22
									5 1/4	13	9 / 8	23 / 20
									6 1/2	17	8 / 4 1/2	20 / 11
									6 1/4	16	12 1/2 / 9 1/4	32 / 23
									6 1/2	17	8	20
									4 3/4	12	9 1/2	24
									6 7	18		
									6 1/2	17		
									8.0	20		
									5 1/2	14		
									8 1/4	21		
									5 1/2	14		
									5 1/2	14		
									7.0	18		

QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Vegetation Type Doug. Fir Transect # D-1 Type P
T 1S R 100W S 28 1/4 1/4 SENE Quadrat Size 1 x ½ m
Aspect (degrees) 310 Slope ~~(degrees)~~ 12% Elevation (feet) 8450
Field Analyst(s) Voories - Haynes Date 14-14-25
Site Description N/A QA Check RPM 9/23/75

Species	Code #	Phenology Code / HT	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Lithospermum ruderale	162	2 - 48																	1	6		
Astragalus tenellus	282	2 - 16	5	5	2	1	3	2	1	4					2	2			4	4	2	1
Carex geyeri	160	2 - 10	5	5		1		1		8	X	2		16		18		3		2		
Acroptilon tracyc[illegible]um	054	2 - 40								1		1								2		
Stipa comata	115	7 - 90																		1		
Thalictrum fendleri	116	2 - 21													20	12						
Erigeron speciosis	275	2 - 12									2	1			2	1						
Galium boreale	083	2 - 20			24	4			1	1												
Achillea lanulosa	050	2 - 23	8	2																		

QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Sheet 1 of 1

Vegetation Type Doug fir Transect # D-3 Type P

T 25 R 100W S 15 1/4 1/4 S NESW Quadrat Size 1x½ m

Aspect (degrees) 335 Slope ~~(degrees)~~ 35% Elevation (feet) 8375

Field Analyst(s) K. Vorres & C. Uphoff Date 9-16-75

Site Description NA QA Check Ron 9/23/75

Species	Code #	Phenology Code / Ht	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Carex geyeri	160	2 / 21		10		2		4		5		14		18		6		6		20		50
Thalictrum fendleri	116	2 / 25	12	10									2	2					5	4		
Aquilegia caerulea	123	8 / 28	1	1																		
Bromus marginatus	066	2 / 35				tr																2
Vida nuttalli	246	2 / 6					4	1											3	2		
Stipa columbiana	300	2 / 35						tr														
Pachystima myrsinites	026	2 / 22			4	4	13	10	10	8	1	1			8	9			4	4		
Osmorhiza depauperata	279	2 / 21											5	3			4	2				
Eriogeron speciosus	275	2 / 30											11	6							16	10
Vida palustris	318	2 / 14											2	2			2	1				
Simalacena stellata	297	7 / 40													1	2						
Viola sp.	118	2 / 2															2	1				
Achillea lanulosa	050	2 / 16																			2	1
Galium boreale	083	2 / 17																			3	1
Vicia americana	304	2 / 40																			3	3

PROOF PROGRESS REPORT

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

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Sheet 1 of 3

Vegetation Type Dougfir — Non-Permanent Transect # D-5

T 25 R 100W S 23 1/4 1/4 S SW SE — Transect Length 100m

Aspect (degrees) 325 — Slope (degrees) 17 — Elevation (feet) 7800

Field Analyst(s) J.B. + D.F.K. — Date 9/15-16/75

Site Description Loamy soil, fallen dead trees, humus — QA Check RPM 9/23/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Syor	033	7,2	32	30	72	166	88	normal
2 Prvi	023	2	31	50	32	20	66	leaves w/ galls
3 Marc	009	2	0	0	0	5	1	normal
4 Amal	034	7,2	13	6	18	21	33	
5 Riin	044	2	37	27	80	15	28	
6 Rowo	041	7,2	68	36	10	20	28	
7 Pamm	026	2	37	124	76	63	51	
8 Quga	025	2	0	0	1	10	1	
9 Putr	024	2	0	3	0	0	0	
10 Dsme	004	—	3	7	2	24	18	

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Prvi	0	0.37	2.20	2.85	2.52	3.10	3.30	3.78	3.95	4.90
	4.50	5.50	8.70	illegible	8.77	illegible	9.11	illegible	illegible	illegible
	illegible	16.75	16.05	16.18	1.83	4.32	4.60	5.50	6.08	illegible
	9.00	9.75	11.21	12.45	12.75	14.40	14.90	15.10	16.28	illegible
	18.00	19.30	illegible	3.78	illegible	8.00	15.58	15.80	9.25	9.30
	11.00	16.70	18.73	18.82	3.80	illegible	10.28	10.55	11.50	illegible
Rowo	illegible	95	1.00	illegible	2.20	2.40	illegible	4.30	illegible	illegible
	7.38	7.58	15.05	15.23	15.20	illegible	16.80	illegible	illegible	17.33
	18.30	15.38	2.00	2.10	13.10	13.23	13illegible	illegible	illegible	illegible
	15.12	illegible	8.00	8.12						
Riin	1.03	1.22	1.37	1.54	3.40	3.50	9.30	9.40	illegible	illegible
	10.35	10.85	illegible	12.03	illegible	12.38	12.60	12.70	illegible	illegible
	13.18	13.42	14.00	14.17	illegible	illegible	illegible	17.10	17.00	illegible
	illegible	17.30	17.40	17.67	17.75	18.00	illegible	18.23	illegible	illegible

PROG PROGRESS REPORT

LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

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Project 83
Sheet 2 of 3

Vegetation Type Douglas Fir Non-Permanent Transect # D-5 Date 9/15/75

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Amal	1.50	1.60	4.42	4.62	10.70	10.87	11.10	11.70	12.91	15.15
	15.49	15.80	18.30	18.75	19.05	19.53	0.00	1.10	1.40	1.80
	3.30	5.35	5.40	6.40	6.90	8.50	9.15	11.60	2.50	3.25
	3.90	5.20	8.80	10.63	11.00	17.30	19.75	20.00	4.90	5.45
	10.70	10.95	17.50	18.63	19.70	19.75	2.90	2.97	3.23	4.12
	6.05	6.33	6.60	6.80	7.10	7.82	8.30	9.10	9.32	9.70
	14.10	15.96	16.35	18.10	18.25	20.00				
Marc	6.80	6.85								
Quaa	6.87	6.93	15.75	16.31	~~15.80~~					
Psme	1.15	2.09	11.73	12.68	15.80	16.61				
Patr	17.60	19.30								
Syor	1.82	1.93	2.04	2.10	3.30	3.35	6.92	7.04	7.28	7.36
	9.95	10.15	10.95	11.05	11.15	11.22	11.22	11.31	11.50	11.68
	19.20	19.75	0.15	0.23	0.75	0.83	0.90	0.98	4.10	4.21
	6.75	6.83	8.05	8.32	16.15	16.70	17.50	17.55	1.00	1.43
	1.82	1.90	3.18	3.32	17.00	7.15	7.45	7.54	7.90	7.95
	8.75	8.90	9.25	9.67	9.80	10.32	10.50	10.60	11.95	12.15
	12.25	12.31	17.10	17.26	17.50	17.64	18.38	18.41	19.10	19.23
	6.05	6.12	6.33	6.48	7.20	7.23	8.25	8.75	8.80	8.85
Pmen	2.62	2.67	5.30	5.35	8.20	8.40	10.50	10.60	13.65	13.82
	14.58	14.69	15.53	15.63	15.90	16.00	9.80	9.92	12.65	12.78
	13.45	13.53	15.20	15.32	16.67	16.73	17.30	17.35	17.55	17.84
	18.50	18.60	19.30	19.38	1.20	6.30	14.75	14.82	7.65	7.70
	8.90	8.96	5.80	5.84	8.20	8.30	8.73	8.79		
Rivi	18.90	19.00	19.85	19.95	0.00	1.10	1.35	1.41	1.65	1.73
	2.75	3.08	5.35	5.45	14.00	14.35	15.20	15.80	16.00	16.40
	16.72	16.95	17.80	17.90	18.05	18.30	18.60	18.70	19.05	19.96
	0.12	0.27	0.80	0.93	1.00	1.78	1.90	1.95	2.90	3.05
	1.45	1.75	2.00	2.00	11.17	11.34	12.00	12.04	13.47	13.60
	15.91	16.03	16.60	16.65	17.70	17.76				

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LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

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Vegetation Type Douglfir Non-Permanent Transect # D-5 Date 9/15/75

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Syor	9.60	9.65	9.87	9.90	10.62	10.65	11.00	11.13	11.70	11.82
	11.90	11.98	12.65	12.72	13.10	13.34	13.75	13.91	17.48	17.61
	18.50	18.58	18.97	19.11	19.30	9.43	19.85	19.92	0.80	1.02
	1.33	1.48	2.10	2.28	2.30	2.34	2.50	2.53	2.95	2.37
	2.33	3.38	4.31	4.46	6.10	6.17	9.71	9.81	10.10	10.3
	10.80	10.90	14.58	14.64						
Prvi	13.70	13.48	13.70	17.50	17.75	18.60	18.85	20.00		

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LINE-STRIP DATA SHEET
MATURE TREE STRATUM

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Vegetation Type Dougfir Transect # D-5 Type Non-permanent

25 R 100 W S 23 1/4 1/4 S SW/SE Transect Length 100m

Aspect (degrees) 325° Slope (degrees) 17 Elevation (feet) 7800

Field Analyst(s) JTB & D.FN: Date 9/15/75

Site Description heavy soil, fallen dead trees QA Check nom 9/23/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Psme (Dougfir)	004	~	5	5	6	9	6	normal
2 Potr (Aspen)	003	2	0	0	1	0	0	1
3								
4								
5								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
Psme	3.60	6.20	6.65	12.60	18.25	20.00	0.00	4.40	23 [illegible] 19
	6.00	6.85	9.10	12.10	13.40	18.50	None		18 24
	None in 3rd 20 m. transect				1.20	5.00	5.20	15.10	23 17
	15.50	20.00	0.00	5.00	7.53	8.67	11.70	15.00	25 26
	17.00	17.70	17.90	19.10					19 15
									27 31
									[illegible] 8
									21 [illegible]
									25 8
									9 [illegible]
									19 11
									8 52
									28 24
									13 18
									17 9
									9 15
									11 [illegible]
									[illegible] 40
Potr	1.40	2.40	4.80	6.80					20

PROGRESS REPORT

QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Vegetation Type Cottonwood Transect # G-2 Type Perm
T 2S R 99W S 8 1/4 1/4 S NWSE Quadrat Size 5m²
Aspect (degrees) 275 Slope (degrees) 8% Elevation (feet) 7000
Field Analyst(s) Kim Jarvis & G. Walff Date 9-15-75
Site Description NA QA Check pdm 10/1/75

Species	Code #	Phenology Code	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Bromus tectorum	067	8/51		10		30		2		12		K6		12				1		20		tr
Chenopodium fremontii	188	5/17	47	6	16	2	12	2	X6	4	23	3	2	tr	2	tr	8	1	29	4		
Lappula redowskii	199	8/16							6	tr												
Elymus cinereus	200	2/27														1						2
Agropyron trachycaulum	054	2/20														2						
Sitanion longifolium	112	8/34																1				

QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Vegetation Type Greasewood Transect # G3 Type Perm

T 15 R 98W S 16 1/4 1/4 S SENE Quadrat Size .5 m^2

Aspect (degrees) 182° Slope (degrees) 1% Elevation (feet) 6250

Field Analyst(s) Vories & Haynes Date 13-IV-75

Site Description NA QA Check pom 10/1/75

Species	Code #	Phenology Code	AT	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Kochia iranica	265	4 - 16		230	45	160	25	32	4	70	8	40	8	235	45	24	4	15	2	105	16	3	t
Agropyron desertorum	051	7 - 32			1		2		2		3		2		6	18	18		8		10		12
Chenopodium fremonti	198	7 - 12				46	4	34	6	190	20	9	1	125	16	35	8			23	4	4	t
Salsola iberica	139	2 - 4										1	t										
Lepidium montanum ~~sp.~~	247	2 - 2														5	1						

QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Vegetation Type Greasewood Transect #G-4 Type Perm
T 25 R 99W S 12 1/4 1/4 S SENW Quadrat Size .5m2
Aspect (degrees) 93 Slope (degrees) 2% Elevation (feet) 6450
Field Analyst(s) Kim Vories & A.D Uptmor Date 9-15-75
Site Description NA QA Check rmm 10/1/75

Species	Code #	Phenology Code	Ht	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Chenopodium leptophyllum	198	6/30		23	4	21	18	9	2	9	1	37	6	8	2	7	1	3	1	4	1	7	2
Agropyron smithii	052	2/44			1		7	4		14		4		8		2		2		4		8	
Oryzopsis hymenoides	100	2/8					tr.																
Poa sandbergii	108	2/5					1		1		2		tr										
Agropyron trachycaulum	054	7/35															1		1				

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C.2.2.3

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

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Vegetation Type Greasewood Non-Permanent Transect # G-6

T 15 R 98 S 10 1/4 1/4 S SE NW Transect Length 100m

Aspect (degrees) 100° Slope (degrees) 0 Elevation (feet) 6

Field Analyst(s) DFK4 JB Date 09/14/75

Site Description Bottom (wet), rocky, clay soil QA Check [illegible] 9/27/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Save	029	6	21	35	27	32	43	normal
2 Artr	014	5	47	49	42	39	45	
3 Chvi	020	4,5	15	2	10	8	2	
4								
5								
6								
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Save	0.97	2.09	2.38	3.54	3.67	3.92	4.00	4.68	5.87	6.62
	5.46	8.63	8.75	9.39	10.27	10.45	11.50	11.65	14.59	14.92
	2.90	3.00	5.47	5.70	8.22	9.23	9.98	10.32	10.78	12.14
	12.92	13.06	13.17	13.55	16.03	16.60	16.84	16.94	17.03	17.13
	18.40	19.76	18.86	18.99	19.09	19.29	19.85	20.00	0	0.20
	0.20	0.48	0.70	1.40	1.68	1.87	1.93	2.10	3.02	3.24
	3.58	3.90	6.47	6.63	6.78	6.95	7.96	9.10	15.28	15.49
^	16.14	16.38	0.10	0.20	0.68	0.75	0.81	1.00	1.40	2.45
	4.57	4.78	8.75	9.17	9.26	10.50	10.67	10.90	11.61	11.85
Artr	0	0.18	2.61	3.20	4.90	5.19	6.72	7.00	9.81	10.27
	11.05	11.38	15.40	16.57	17.52	18.06	18.38	18.73	18.86	19.05
	0.89	0.19	2.29	3.34	4.08	4.15	4.45	4.70	4.90	4.17
	8.73	9.40	10.90	11.42	14.68	14.94	15.14	15.35	15.12	15.33
	16.65	16.82	16.90	17.15	19.93	20.00	0.08	0.52	5.43	6.25
Chvi	14.16	14.50	18.58	18.83	7.66	7.93				

LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

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Vegetation Type Greasewood Non-Permanent Transect # G-6 Date 09/14/75

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Save	12.08	12.59	13.25	13.95	15.00	15.58	16.32	16.40	19.61	20.00
	0.10	0.45	0.53	1.00	2.05	2.48	2.70	3.38	3.96	4.35
	4.50	4.66	7.06	7.54	7.70	8.05	8.28	8.61	9.65	9.75
	11.18	11.80	12.72	13.21	15.54	16.22	17.88	17.91	19.04	19.25
	19.30	19.45	19.90	19.99						
Artr	6.30	6.44	9.85	9.90	10.75	11.17	11.27	11.47	13.34	13.50
	15.93	16.26	~~lost~~		17.05	17.27	17.20	17.40	18.96	20.00
	0.00	0.12	3.43	4.80	5.10	5.70	5.98	6.41	6.74	6.83
	7.23	7.57	13.95	14.30	14.40	14.95	15.20	15.45	15.65	16.40
	17.64	17.81	17.90	18.35	19.38	20.00	0.00	0.02	2.00	2.62
	2.82	3.20	3.67	4.50	4.70	5.21	7.62	8.54	9.10	9.75
	10.34	11.16	12.20	12.51	15.32	15.68	15.85	15.93	16.28	16.50

BROSS PROGRESS REPORT

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.224
Project 83

Sheet 1 of 1

Vegetation Type Mixed brush Transect # M-3 Type Perm

T 25 R 100W S 24 1/4 1/4 S SESE Quadrat Size .5m²

Aspect (degrees) 330° Slope (~~degrees~~) 40% Elevation (feet) 7840

Field Analyst(s) K.V. + DFK Date 9/17/75

Site Description NA QA Check RDM 10/1/75

Species	Code #	Phenology Code	Ht	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Carex geyeri	160	2	15		3				2		4		4										
Helianthella uniflora	283	4	40	1	1									1	2			1	1				
Epilobium ogaregata	273	6	50			1	2													1	1		
Sitanion longifolium	112	8	10			1	1																
Erigeron eatoni	230	2	12											3	1								
Agropyron trachycaulum	054	2	40												2		3				1		2
Eriogonum umbellatum	128	2	6											3	3								
Chamaenerion umbellata	280	2	12											1	T	3	1	1	1				
Penstemon caespitosus	103	2	3													2	2						
Cryptantha sericea	194	2	3													3	1						
Oryzopsis hymenoides	100	2	30															2	3			2	
Physaria floribunda	175	2	3															4	1				

RBOSP PROGRESS REPORT

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

C224
Project 83
Sheet 1 of 1

Vegetation Type Mixed Brush Transect # M-1 Type Perm
T 15 R 99W S 32 1/4 1/4 S SESW Quadrat Size .5m²
Aspect (degrees) 320 Slope (degrees) 15% Elevation (feet) 7250
Field Analyst(s) K. Vories & Co. Uphill Date 9-16-75
Site Description NA QA Check KEM 10/1/75

Species	Code #	Phenology Code / HT	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Clematis hirsutissima	217	8/26	1	2																		
Astragalus diversifolius	287	8/10	3	tr																		
Penstemon caespitosus	103	2/2	1	1	1	tr			3	2			3	1			15	8	12	5	5	2
Agropyron trachycaulum	054	2/12		1			1		3					1								
Haplopappus nuttallii	155	2/15	1	1														1			1	1
Oryzopsis hymenoides	100	7/32				2				1				5		1		1		6		1
Linum lewisii	190	2/20			1	tr			2	1			14	4	1	tr			3	1	1	tr
Crytantha scricea	194	2/3			1	tr							1	1			1	tr	1	tr		
Physaria floribunda	175	2/1			1	tr			1	tr											2	1
~~Acon~~																						
Lithospermum ruderale	162	7/40					2	2														
Chamaepitium lepidophyllum	2186	1/3							3	tr												
Castilleja chromosa	154	2/6							1	1							1	2	1	1		
Gutierrezia sarothrae	002	6/13									24	12			9	6					1	2
Stipa comata	115	7/44										3				1		10				8
Poa sandbergii	108	2/6										1				8						
Erigeron eatonii	230	2/4															1	tr				
Koeleria gracilis	090	2/4																		1		
Erysimum asperum	270	8/57																	1	1		

BROSP PROGRESS REPORT

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

Project 83

Sheet 1 of 1

Vegetation Type Mixed Brush Transect # m-9 Type Perm

T 1S R 99W S 31 1/4 1/4 S NWNW Quadrat Size .5m²

Aspect (degrees) 160° Slope (degrees) 18° Elevation (feet) 7640

Field Analyst(s) Vorves & Haynes Date 14-IX-75

Site Description NA QA Check mm 10/1/75

Species	Code #	Phenology Code	Quadrat 1		2		3		4		5		6		7		8		9		10	
			#	C	#	C	#	C	#	C	#	C	#	C	#	C	#	C	#	C	#	C
Happlopappus nuttallii	155	7-16	2	1	3	2	1	2	12	4	8	5	4	2	2	2	7	8			3	3
Erigeron eatonii	230	2-4																			1	t
Penstemon caespitosus	103	2-2					1	t	2	2	1	1	1	t								
Cryptantha sericea	194	2-3					1	t														
Stipa comata	115	2-20						1														
Balsamorhiza sagittata	063	8-30					1	4														
Lygodesmia lewisii	190	2-10	2	1	1	t																
Crepis acuminata	160	2-12				1																
Oryzopsis hymenoides	100	2-6		t																		

PROSP PROGRESS REPORT

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

C 2 2 4

Project 83

Sheet 1 of 1

Vegetation Type Mixed brush Transect # M-2 Type Perm

T 2S R 9W S 17 1/4 1/4 S NW NW Quadrat Size .5m²

Aspect (degrees) 333 Slope (degrees) 43% Elevation (feet) 7180

Field Analyst(s) Kim Davies & G. Duplaff Date 9-15-75

Site Description NA QA Check Mom 10/1/75

Species	Code #	Phenology Code / Ht	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Poa sandbergii	108	2/12		2		3		3		5		4		2		6		2		tr		
Eriogonum [illegible]	V218	2/4	2	1	3	2			8	4	16	6			21	6					3	1
Eriogeron Eatonii	230	8/23	1	1			5	1														
Koeleria cristata	090	2/10				1		1		1				1		1						
Pachystima myrsinites	0216	2/6			3	1																
Agropyron trachycaulum	054	2/15						2												tr		tr
Heuchera parvifolia	130	2/6					1	1														
Hedysarum boreale	174	2/30					1	1														
Gutierrezia sarothrae	012	4/30							2	2												
Oryzopsis hymenoides	100	7/55								3						3						
Cryptantha Spiceae	194	2/2							2	1	2	1			1	1						
Astragalus diversifolius	287	Vino 2/30							3	1	1	1										
Lupinus caudatus	231	8/18											1	1								
Penstemon caespitosus	183	2/5													1	1						
Sphaeralcea coccinea	184	2/6													1	1	1					
Elymus cinereus	200	2/82																4				

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LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

Project 83
Sheet 2 of 2

Vegetation Type Mixed Brush
Non-Permanent Transect # M-14
Date 9/17/75
transcription OK Rom 10/7/75

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Syor	0.0	0.51	1.5	2.03	2.65	2.90	7.43	7.48	8.72	8.95
	9.10	9.43	9.65	10.60	10.8	11.50	14.60	16.10	16.23	16.31
	16.50	16.60	16.98	17.10	17.60	18.50	18.35	18.4	1.05	1.51
	1.70	2.18	4.35	4.46	5.01	5.09	6.10	6.20	6.72	6.91
	7.44	7.59	7.65	7.76	14.0	14.25	3.65	4.62	5.52	5.73
	8.10	8.55	8.70	9.23	11.72	13.50	14.12	14.40	17.58	17.99
	18.36	18.78	19.66	20.00	4.30	4.42	4.50	4.68	11.07	11.3
	14.80	14.50	16.13	16.21	16.41	16.46	0.0	1.2	4.65	5.32
	5.66	6.10	9.20	10.68	14.85	15.00	17.82	18.92		
ArTr	2.60	2.70	3.25	3.63	11.33	11.9				
Amut	18.16	18.21	18.50	18.53	18.97	20.00	0.0	4.73	5.92	9.18
	10.68	10.93	11.80	12.00	12.5	14.85				

T2S, R100W, S2 NENW
Asp. 110; Slope 23°
Elevation 7980

QUADRAT DATA SHEET Permanent C224
HERBACEOUS STRATUM

Project 83
Sheet 1 of 1

Vegetation Type Mixed brush Transect # M7 Date 14-IX-75

Analyst Vories + Haynes Typed 10/1/75

Species	Code #	Phenology Code / Ht	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Carex geyeri	160	2 - 22	.	24		6		20		9		5		36		3		4		10		2
Erigeron umbellatum	12.8	2 - 6	1	1																		
Oryzopsis hymenoides	100	2 - 22		1																		
Polygonum sawatchense	383	6 - 22	7	1																		
Agropyron trachycaulum	054	2 - 27				1																
Galium boreale	083	2 - 15								3	1	4	1	2	t							
Achillea lanulosa	050	2 - 16												3	1							
~~Machaeranthera~~ Pestemontanensis	272	7 - 35															2	1				

RBCSP PROGRESS REPORT

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LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

C.224

Project 83

Sheet 2 of 2

Vegetation Type Mixed Brush Non-Permanent Transect # M-15 Date 9-18-75 RDM

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Avtr.	15.48	16.18	0.68	0.73	2.06	2.21	2.43	2.72	4.33	4.50
	5.78	6.19	6.40	6.75	7.30	7.77	8.80	9.10	11.66	11.90
	15.46	16.12	19.22	19.70	1.00	1.11	3.90	4.55	4.67	5.71
	~~6.42~~	6.71	10.09	10.43	10.98	11.15	15.~~06~~ 23	15.96		
Amut	1.41	4.21	7.13	8.18	10.40	10.97	14.10	15.08	16.10	20.00
Symp	18.72	19.22								

RBOSP PROGRESS REPORT

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 2

Vegetation Type Mixed Brush Non-Permanent Transect # M-14

T 2S R 100W S 22 1/4 1/4 S SWNW Transect Length 100 m

Aspect (degrees) 165 Slope (degrees) 1S Elevation (feet) 8400

Field Analyst(s) K.V. & DFK Date 9/17/75

Site Description Shale soil, Dry site, Well spaced AmuT Stand QA Check OK KAM 10/7/75

Species	Code #	Phenology Code HT	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	S/.78	64	67	66	63	18	
2 Chvi	020	6/.32	74	71	60	51	24	
3 AmuT	032	2/.220	28	39	41	50	63	
4 SyOr	033	2/.65	223	91	97	160	91	
5 Teca	031				1			
6								
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Artr	2.03	2.18	3.03	3.23	7.18	7.29	8.95	9.46	9.65	9.78
	16.75	18.9	0.71	0.94	2.6	2.81	3.40	3.72	3.78	4.01
	4.16	4.85	9.50	9.61	10.16	10.30	10.56	10.65	11.03	11.06
	13.21	13.36	15.43	16.15	0.95	1.06	3.26	3.69	6.85	7.02
	7.54	7.95	8.54	9.03	10.3	10.48	10.65	10.72	11.20	11.60
	12.0	12.40	17.22	17.53	1.2	1.56				
Chvi	1.25	1.42	2.43	2.56	2.23	2.30	5.69	5.75	5.94	6.03
	7.05	7.36	8.00	8.30	16.03	16.32	16.98	7.02	4.08	4.15
	15.73	15.80	17.55	17.60	18.32	18.41				
AmuT	0.0	2.32	10.55	10.80	11.2	15.4	18.15	18.30	18.55	18.98
	19.3	20.00	0.13	0.60	3.15	3.40	5.1	5.12	5.26	5.54
	5.75	5.87	6.02	6.05	6.19	6.52	8.60	9.47	11.42	11.72
	11.77	12.22	14.40	14.75	17.32	17.40	4.58	5.46	13.0	13.33
	13.4	13.53	13.68	14.03	14.45	16.03	0.00	0.40	0.60	0.9
	2.20	2.26	2.86	3.14	3.52	3.60	3.70	3.83	4.83	9.03
	11.35	14.04	15.00	15.52						

RBOSP PROGRESS REPORT

C224

LINE-STRIP DATA SHEET
~~MATURE~~ TREE STRATUM
shrub & tree seedling

Project 83
Sheet 2 of 2

Vegetation Type Mixed Brush Transect # M16 Type
T 25 R 100W S 12 1/4 1/4 S HWSW Transect Length 100
Aspect (degrees) 110° Slope (degrees) 8° Elevation (feet) 7150
Field Analyst(s) K.V. + D.F.K. Date 9/17/75
Site Description QA Check RPM

Species	Code #	Phenology ~~Code~~ / HT	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Quga	025	1 6 / 350	1	64	23	35	51	
2 Teca	031	2 / 15	9	←	–	–	–	
3								
4								
5								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
Syor	6.80	7.11	13.72	13.85	.12	.45	.67	.87	N/A
	17.93	18.18	18.90	18.95	10.83	11.02			
Artr	15.95	17.14	18.25	18.33	18.69	18.79	19.53 ~~56~~	19.56	
Teca	18.22	18.40							
Chvi	12.02	12.04	17.58	17.72	10.57	10.63	13.80	14.01	
Quga									
Quga	8.66	10.01	10.28	10.96	11.55	13.80	13.85	16.38	
	.25	.50	1.35	1.57	1.82	2.69	2.80	2.89	
	4.0	4.32	4.46	4.89	5.05	5.3	5.48	6.18	
	5.84	8.66	9.10	9.93	10.20	10.48	14.63	15.59	

BROSP PROGRESS REPORT

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 2

Vegetation Type Mixed Brush — Non-Permanent Transect # M-15

T 2S R 100W S 11 1/4 1/4 S NW of NW Transect Length 100M

Aspect (degrees) 330° Slope (degrees) 10° Elevation (feet) 8000

Field Analyst(s) K. Vories & G. Uphoff Date 9-18-75

Site Description Dense Amelt-Oak stand QA Check RPM 10/7/75

Species	Code #	Phenology Code / height	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Amut	032	2/230	85	53	54	58	47	
2 Quga	025	6/320	0	0	0	0	0	
3 Artr	014	6/130	34	53	91	73	114	
4 Suor	033	2/50	84	118	76	85	110	
5 Chvi	020	6/60	3	1	7	0	0	
6 Putr	024	2/70	0	1	0	0	0	
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
AMut	1.68	7.03	10.36	10.42	7.50	7.78	10.84	11.83	8.20	8.35
	12.58	18.62	18.76	18.95	5.30	7.62	8.50	11.76	13.20	13.60
	15.73	16.20	16.65	16.70	17.08	18.69	19.60	20.0	0.00	0.25
	9.60	12.25	15.60	15.66	16.26	16.35	16.60	16.88	17.15	20.00
	0.00	0.44	4.68	5.08	6.78	7.24	10.89	11.00	11.80	14.03
	14.10	14.40	14.62	14.83	15.30	15.46	16.24	19.25	1.11	1.33
Suor	7.05	7.38	18.10	18.36	19.03	20.00	0.65	0.90	3.51	3.65
	7.10	7.88	1.56	1.70	12.08	12.51	4.6	4.68	4.98	5.03
	12.40	12.70	15.02	15.08	18.40	18.80	3.30	3.82	7.90	9.00
Chvi	16.46	16.51								
Artr	8.59	9.56	9.58	10.22	19.50	20.00	0.00	0.45	2.00	2.87
	4.75	5.42	7.88	8.02	11.70	12.00	12.30	12.46	12.75	12.93
	14.12	14.28	14.42	14.50	16.86	17.08	1.80	1.13	2.90	3.26
	5.03	5.17	8.28	8.46	8.87	9.01	13.82	14.20	14.67	15.06

LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

Project 83
Sheet 2 of 2

Vegetation Type Mixed Brush Non-Permanent Transect # M-17 Date 9-18-75 RBM

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Sayor	17.89	18.11								
Chvi	12.31	12.36	15.68	15.78	17.55	17.75	8.97	9.10		
Amut	3.68	4.25								
Arto	11.47	11.56	13.37	13.64	14.61	14.83	18.50	18.81	0.98	1.01
	2.80	2.92	5.75	5.83	11.93	11.98	14.49	14.86	18.75	18.90
	18.85	20.00								
Pied	13.75	13.85	3.96	5.11						
Cusa	16.18	16.30								

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LINE-STRIP DATA SHEET

~~MATURE~~ TREE STRATUM Shrub + tree seedling

Project 83

Sheet 1 of 2

Vegetation Type Mixed brush Transect # M-16 Type Non-permanent

T 25 R 100W S 12 1/4 1/4 S NWSW Transect Length 100 m

Aspect (degrees) 110° Slope (degrees) 8° Elevation (feet) 7150

Field Analyst(s) K.V. + D.F.K. Date 9/17/75

Site Description Fairly Open Arnut Stand; Inter/Intermix with Upland Spec QA Check Rom 10/7/75

~~Tree~~

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	6 / 50	110	109	81	57	85	Normal
2 Arnut	032	2 / 60	33	35	45	110	20	
3 Svor	033	2 / 20	14	8	67	67	20	
4 C'hvi	020	6 / 31	20	33	8	13	19	
5 Putr	024	2 / 72	56	46	23	64	11	
6 ~~Quer~~								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
									N/A
Artr	0.	0.15	.46	.52	4.22	4.40	5.60	6.38	
	9.73	10.09	10.36	10.97	12.62	12.76	13.44	13.72	
	14.18	14.60	17.35	17.40	2.1	2.2	2.3	2.38	
	2.5	2.53	16.83	17.22	18.46	18.56	19.38	19.75	
	1.0	1.87	9.76	10.40	3.02	3.14	3.91	4.0	
	5.3	5.5	6.38	6.71	8.5	8.73	11.32	12.65	
	16.54	17.74	0	.16	2.08	2.95	3.03	3.20	
	3.61	3.73	4.10	4.42	5.64	5.93	12.35	12.98	
Arnut	6.89	8.93	3.9	4.15	4.25	4.64	5.19	6.30	
	6.51	6.55	10.75	10.9	11.00	11.6	1.85	6.16	
	10.99	11.63	13.86	14.00	16.50	20.00	8.40	8.46	
	9.13	10.4	12.85	16.15	19.07	2.00	1.20	1.42	
	6.52	6.73	7.56	7.9	8.65	9.22	10.02	10.17	
	10.53	17.15	11.38	11.44	15.30	15.95	19.95	20.00	
Putr	2.12	2.48	4.85	5.60	6.30	6.76	8.83	9.16	
	9.57	9.81	12.96	13.51	15.55	16.70	0.1	0.15	
	.88	1.0	2.6	2.83	2.3	3.32	4.2	4.29	
	7.21	7.30	7.60	8.08	9.82	10.14	13.4	13.78	
	14.03	14.15	14.26	15.06	17.45	18.50	.87	1.44	
	6.78	7.41	7.54	8.10	.30	.41	.58	1.03	
	4.18	4.63	5.50	5.61					

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.2.2.3

Project 83

Sheet 1 of 1

Vegetation Type Pinyon-Juniper Transect # P-1 Type Perm

T 15 R 99W S 33 1/4 1/4 SSENE Quadrat Size .5 m²

Aspect (degrees) 340 Slope (degrees) 7% Elevation (feet) 7200

Field Analyst(s) K. Vories & G. Uphoff Date 9-16-75

Site Description K N A QA Check Rom 9/23/75

Species	Code #	Phenology Code	Ht	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Oryzopsis hymenoides	100	7/30			1		V								1		1		1				
Eriogonum leptophyllum	172	6/10				2	2			1	tr	2	1			11	4	5	2				
Haplopappus spinulosus	155	2/22						1	2							2	2			1	1	4	4
Agropyron trachycaulum	054	2/27							4		4				1				2		3		8
Euphorbia lenticulata	267	2/2						1	1					1	1	2	2	2	2			5	2
Cryptantha scoparia	194	2/2																1	tr				
Astragalus diversifolius	287	2/22																				2	1

PROGRESS REPORT

ECI

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

C224

Project 83

Sheet 1 of 2

Vegetation Type Mixed brush Non-Permanent Transect # M-17

T 2S R 99W S 8 1/4 1/4 S NW of NW Transect Length 100 M

Aspect (degrees) 340° Slope (degrees) 8° Elevation (feet) 7400

Field Analyst(s) K. Davies & G. Uphoff Date 9-18-75

Site Description Majority area actually upland sage QA Check from 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr.	014	6/ .60 height	36	51	57	83	55	normal
2 Amut	032	2/ 102	26	65	104	26	23	
3 Chvi	020	6/ 12	105	67	22	103	34	
4 Putr	024	2/ 25	16	5	6	6	1	
5 Teca	031	2/ 14	3	0	0	31	2	
6 Prd	002		4	1	1	6	6	
7 Sypr	033	2/38	16	72	38	4	0	
8 Gusa	012	5/ 16	2	3	4	12	2	
9 Juos	001		0	1	1	0	2	
10 OPPA	037	2/ 8				1	1	

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Putr	2.51	3.02	5.95	6.30	10.98	11.49	19.53	19.63	13.57	13.93
Chvi	3.68	3.77	5.55	5.60	9.85	10.00	14.06	14.12	16.85	16.88
	17.76	17.80	18.31	18.43	.42	0.45	1.63	1.72	13.68	13.75
	15.81	16.13	19.83	19.87	0.83	0.91	1.21	1.27	2.55	2.57
	2.73	2.81	6.20	6.23	18.43	18.56	10.22	10.25	10.46	10.63
Amut	4.36	5.19	12.48	15.78	4.35	4.42	4.95	5.08	5.52	5.65
	5.85	6.18	6.71	6.90	8.03	8.20	8.76	9.15	9.71	9.90
	10.06	10.37	16.58	16.67	17.02	17.16	4.26	4.55	4.62	6.17
	6.40	6.44	7.02	8.08	10.91	12.91	14.02	15.94	14.13	14.17
Teca	6.76	6.83	12.37	12.49	19.28	19.47				
Sypr	15.78	16.39	4.52	4.60	4.72	5.07	6.23	6.60	8.20	9.72
	2.43	2.46	12.20	13.55	14.70	14.86	17.40	17.65	17.70	17.8
Artr	7.93	7.99	17.83	18.02	2.63	2.80	7.75	7.86	8.25	8.10
	9.15	9.25	10.50	10.89	16.38	16.50	16.60	16.89	17.35	18.20
	10.11	10.32	3.77	3.90	5.02	5.51	8.22	8.29	9.08	9.31

RRCSP PROCESS REPORT

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C225
Project 83
Sheet 1 of 1

Vegetation Type PINION JUNIPER Transect # P3 Type Perm
T 25 R 99W S 12 1/4 1/4 S NWNE Quadrat Size .5m²
Aspect (degrees) 140 Slope (~~degrees~~) 7% Elevation (feet) 6600
Field Analyst(s) Vories - Haynes Date 13-IX-75
Site Description NA QA Check RDM 10/1/75

Species	Code #	Phenology Code HT	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Agropyron smithii	052	2 - 22		1																		
Hymenopappus filifolius	289	2 - 10	1	1					1	1											1	1
Tragopogon dubius	269	6 - 3	1	1	3	t	1	t														
Euphorbia fendleri	267	2 - 2	2	1			1	1							2	1	2	1			2	1
Gutierrezia sarothrae	012	4 - 22	1	2																	1	1
Physaria floribunda	175	2 - 2	1	t													2	1			2	1
Arenaria eastwoodiae	288	7 - 12	1	t																		
Haplopappus nuttallii	155	7 - 15	1	1			1	1	2	1									1	2		
Agropyron trachycaulum	054	2 - 10								1						1		3				1
Eriogonum leptophyllum	172	2 - 5							2	1	1	2			1	1			2	1		
Streptanthus cordatus	290	2 - 2															1	t				
Oryzopsis hymenoides	100	7 - 35																		1		
Phlox hoodii	209	2 - 2																	1	t	1	1

PROJ. PROGRESS REPORT

ECI

LINE-STRIP DATA SHEET
MATURE TREE STRATUM

C224

Project 83

Sheet 1 of 1

Vegetation Type Mixed Brush Transect # M-11 Type Nom - perm

T 2S R 99W S 8 1/4 1/4 S NW of NW Transect Length 100 M

Aspect (degrees) 340° Slope (degrees) 8° Elevation (feet) 7400

Field Analyst(s) K. Voriel & C. Uptiff Date 9-18-75

Site Description QA Check RPM 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Pied 1	002		1	1				
2								
3								
4								
5								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
									15,9

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.2.2.5

Project 83

Sheet 1 of 1

Vegetation Type Pinyon - Juniper Transect # P-5 Type Perm

T 25 R 99W S 14 1/4 1/4 S NESW Quadrat Size .5 m²

Aspect (degrees) 330 Slope (degrees) 13% Elevation (feet) 6800

Field Analyst(s) Kim Vories & C. D. Uphoff Date 9/15/75

Site Description NA QA Check RDM 10/1/75

Species	Code #	Phenology Code / Hr	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Agropyron trachycaulum	054	2 / 31		4		tr		tr.				tr.				1		tr.		tr		tr.
Poa sandbergii	108	2 / 10		1		1										1						
Phlox hoodii	209	2 / 3	1	Tr.	2	1	1	tr.			2	1			5	2			1	tr.		
Moss	152			1												1						
Oryzopsis hymenoides	100	2 / 6				1														tr		tr.
Hapbpappus nuttalli	155	7 / 6			1	tr		1														
Tensteman caespitosus	103	2 / 2					2	1							1	1						
Sphaeralcea coccinea	181	2 / 4									4	1										
Polygonum sawatchense	383	2 / 10									3	tr										
Cryptantha sericea	194	2 / 2									1	tr	1	1	3	tr.					1	1

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Project 53
Sheet 1 of 1

Vegetation Type Pinyon Juniper Transect #P-2 Type Perm
T 15 R 99W S 24 1/4 1/4 S NW NW Quadrat Size .5m²
Aspect (degrees) 340 Slope (degrees) 4% Elevation (feet) 6520
Field Analyst(s) Kim Davies & C.D. Uphoff Date 9-15-75
Site Description NA QA Check Rom 9/23/75

Species	Code #	Phenology Code / HT	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Hadrotaphes nuttallii	155	2/19	2	2	1	tr					3	1										
Koeleria gracilis	090	2/6		2			1		1		1							1		1		2
Agropyron trachycaulum	054	2/26		1		3		tr.		4		6		7		tr		1				3
Oryzopsis hymenoides	100	2/17		tr.								1		2		2		1				1
Astragalus diversifolius	287	2/15	4	1																		
Cryptantha scricea	194	2/2	1	tr	3	1									3	1	3	1	4	1		
Poa secunda	108	2/17				2		3		1		1						2		8		1
Bouteloua hoodii	209	2/2			8	2					2	1					7	3	3	1		
Moss	152							15														
Erigeron eatonii	230	2/2					1	tr			1	tr.			1	tr.						
Astragalus spatulatus	292	2/2					1	tr			1	tr					2	tr.				
Arenaria eastwoodiae	288	7/10									4	1										
Agropyron smithii	052	2/22										1		tr.								

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

Project 83

Sheet 1 of 1

Vegetation Type Pinion-Juniper Transect # P15 Type Perm

T 15 R 99W S 21 1/4 1/4 S SWSE Quadrat Size .5m²

Aspect (degrees) 125 Slope (~~degrees~~) 10% Elevation (feet) 7120

Field Analyst(s) Vories & Haynes Date 14-IX-75

Site Description NA QA Check ~~nm~~ 10/1/75.

Species	Code #	Phenology Code / Ht	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Haplopappus nuttallii	155	7 - 25	1	3					1	2												
Agropyron trachycaulum	054	2 - 22		1			t				t		1									
Poa sandbergii	108	2 - 12					2								8				4			
Oryzopsis hymenoides	100	2 - 32							4		1											
Euphorbia fendleri	267	2 - 2							7	2												
Carex geyeri	160	2 - 16											2									
Aster campestris KV	360	5 - 9													1	1						
Balsamorhiza sagittata	063	8 - 10													1	1						
moss	152															6			1			
Cryptantha sericea	194	1 - 2																	2	T		
Chenopodium fremonti	198	8 - 13																			5	1

Quad #8 Empty

REOCP PROGRESS REPORT

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.225
Project 83
Sheet 1 of 1

Vegetation Type Pinyon-Juniper Transect # P-4 Type Perm
T 15 R 99W S 33 1/4 1/4 SSESE Quadrat Size .5 m²
Aspect (degrees) 290° Slope (degrees) 8% Elevation (feet) 6920
Field Analyst(s) K. Vories & G. Waldo Date 9-16-75
Site Description NA QA Check RDM 10/1/75

Species	Code #	Phenology Code	Hr	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Oryzopsis hymenoides	109	2/20			1						2								1				
Agropyron trachycaulum	054	2/22					2										2						1
Eriogonum umbellatum	128	2/4				2	2	2	2														
Phlox hoodii	209	2/2						5	2	2	1	1	tr	1	1							1	1
Poa sandbergii	108	2/8							1												2		
Senecio multilobatus	1251	2/3						2	1	2													
Eriogonum ovalifolium	230	2/6						3	1														
Sitanion longifolium	1102	8/22							1												3		3
Putiera pinnatifida	042	5/13							tr.														
Erythranthe servicea	194	2/2						1	tr	2	tr	2	tr							4	1	11	2
Koeleria gracilis	090	2/8							1		1												
Penstemon caespitosus	103	2/2														1	1						
Sphaeralcea coccinea	181	2/4																		9	1		

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LINE-STRIP DATA SHEET
MATURE TREE STRATUM

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Sheet 1 of 1

Vegetation Type Pinon-Juniper Transect # P-22 Type non-permanent

15 R 99W S 13 1/4 1/4 S NW SW Transect Length 100 m

Aspect (degrees) 80 Slope (degrees) 3.5 Elevation (feet) 6600

Field Analyst(s) JB & DFK Date 9/14/75

Site Description Old mining lead JUOS; eroded rock QA Check RBM 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 ~~Pied~~			—					
2 JUOS	001	—	2	3	4	5	6	normal
3								
4								
5								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
JUOS	0.30	0.90	6.70	7.24	9.6	10.10	11.45	12.92	48
	14.14	19.20	16.40	18.25	7.35	8.54	9.12	13.10	38
	2.25	7.10	8.08	8.95	10.50	13.70			30
									50
									46
									27
									25
									45
									15
									28
									60
									54
									35
									48
									34
									50
									40
									52
									40
									57

PROOF PROGRESS REPORT

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C2.23

Project 83

Sheet 1 of 1

Vegetation Type Pinyon – Juniper Transect # P-13 Type Perm

T 25 R 99W S 9 1/4 1/4 S SWSW Quadrat Size .5m²

Aspect (degrees) 97 Slope (degrees) 2% Elevation (feet) 7400

Field Analyst(s) Kim Davies & G. Uphoff Date 9-15-75

Site Description NA QA Check RDM 10/1/75

Species	Code #	Phenology Code	Ht	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Stipa Comata	115	2/26			2		2		1		1						1		tr				tr.
Sphaeralcea coccinea	181	2/5						20	4					9	2								
Atriplex hoodii	209	2/2						2	1														
Cryptantha sericea	164	2/4						5	1			3	1			1	tr.	1	1	1	tr.		
Carex geyeri	160	2/6							2						tr								
Poa scabrella	108	2/4							1		tr		1		1				2		1		5
Astragalus chamaeleuce	208	2/2						1	tr														
Agropyron trachycaulum &	054	2/22							tr		1				tr.								31
Oryzopsis hymenoides	198	2/18							tr.		tr		2		tr								
Bromus tectorum	067	8/17									2												
Eriogonum eatonii	230	2/3																	tr				

PROG PROGRESS REPORT

(CT)

LINE-STRIP DATA SHEET
MATURE TREE STRATUM

Project 83

Sheet 1 of 1

Vegetation Type Pinyon – Juniper Transect # P-23 Type Non-permanent

T 15 R 99W S 35 1/4 1/4 S NW/NW Transect Length 100 m

Aspect (degrees) 75° Slope (degrees) 25 Elevation (feet) 6800

Field Analyst(s) BAKER / HOFFOFF Date 9/17/75

Site Description sand & rock soil, herbac. cover sparse QA Check RAM 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Conditio
1 Juos	001		1	1	0	2	0	normal
2 Pied	002		0	0	1	0	1	!
3								
4								
5								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
Juos	18.05	19.55	4.64	9.40					70, 59, 11, 2
Pied	7.00	9.60	12.00	16.45					21, 35

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 1

Vegetation Type Pinon Juniper Non-Permanent Transect # P-22

T 15 R 99W S 13 1/4 1/4 S NW SW Transect Length 100m

Aspect (degrees) 80 Slope (degrees) 3,5 Elevation (feet) 6600

Field Analyst(s) J.B. + DFK Date 9/14/75

Site Description Old mature P-J (pinon, Pi os) many old dead QA Check from 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	4,5	54	17	9	10	26	normal
2 Chvi	020	4,5	6	10	30	2	3	
3 GuSa	012	4,5	0	0	3	0	0	
4 Pi os	001	/	0	0	4	0	1	
5 Dead								
6 Amut								
7 ~~Sp or~~								
8 Opun	037	2	0	1	0	1	0	
9 "								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Artr	1.80	1.92	4.50	5.70	5.30	5.65	6.30	6.75	7.03	7.21
	8.20	8.37	11.72	12.28	12.47	13.03	18.58	18.72	8.79	9.40
	10.48	10.60	14.23	14.55	14.78	14.92	6.50	6.87	14.0	14.20
	1.63	2.20	2.35	2.58	6.14	6.37	15.62	15.95	15.63	16.70
Chvi	19.20	19.35	8.10	8.27	14.33	14.60	14.75	14.93	5.02	15.18
	5.45	5.73	12.27	12.35	19.35	19.60				

RECORD PROCESS REPORT

C.225

LINE-STRIP DATA SHEET
MATURE TREE STRATUM

Project 83

Sheet 1 of

Vegetation Type Pinyon-Juniper Transect # P-24 Type NOn-perm.

T 25 R 9W S 15 1/4 1/4 S NE/SW Transect Length 100 m

Aspect (degrees) 120 Slope (degrees) 7 Elevation (feet) 7000

Field Analyst(s) J.B. D.F.K Date 13 Sept. 95

Site Description shallow rocky soil, grazed QA Check RMM 10/7/95

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Pied	002	—	1	0	1	0	1	normal
2 Juos	001	—	1	1	2	1	1	1
3								
4								
5								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
Pied	1.25	2.20	18.40	20.00					22 cm
~~Juos~~									1
									1
									11
									27
Juos	3.28	5.35	14.98	15.44	19.47	20.00	0.8	2.10	27 cm / 19
	18.95	20.00	0	0.15					20
									~~21~~ 22
									~~18~~ 12
									25
									25

RECAP PROGRESS REPORT

C-225

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 1

Vegetation Type Pinyon-Juniper Non-Permanent Transect # P-23

T 15 R 99W S 35 1/4 1/4 S NW of NW Transect Length 100 M

Aspect (degrees) 75° Slope (degrees) 2.5° Elevation (feet) 6800

Field Analyst(s) J. Baker & G. Uphoff Date 9-17-75

Site Description Sand & Rocksoil, Herbac. cover sparse QA Check [illegible] 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Amut	032	~~1~~	8	0	0	0	0	
2 Chvi	020	~~5~~	20	14	12	4	11	
3 Artr	014	~~7/2~~ 5	6	3	4	6	15	
4 Atco	016	2	12	6	3	0	0	
5 Pied	002	—	3	7	0	2	5	
6 Juos	001	—	0	0	1	0	0	
7 Arfr	013	5, 6	4	4	6	2	0	
8 Teca	031	2	0	0	7	0	0	
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Chvi	3.54	3.63	9.03	9.21	5.45	5.59	14.27	14.37	18.25	18.46
	2.91	3.09								
Atco	9.74	9.90	10.68	10.71						
Artr	12.87	13.32	17.98	18.06	7.32	8.02				

BSCP PROGRESS REPORT

C223

LINE-STRIP DATA SHEET
MATURE TREE STRATUM

Project 83

Sheet 1 of

Vegetation Type Pinon-Juniper Transect # non-perm Type P-25

25 R 9W S 20 1/4 1/4 S SE NW Transect Length 100 m

Aspect (degrees) 140 Slope (degrees) 10 Elevation (feet) 7470

Field Analyst(s) DFK + JB Date 9/13/75

Site Description clay loam, porcupine sign, old burn QA Check RAM 10/7

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Conditio
1 Pied	002	—	3	2	2	—	1	normal
2 Juos	001	—	—	—	-	-		normal
3								
4								
5								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
Pied	2.90	3.60	4.60	5.34	19.62	20.00	0.0	3.35	21
	14.50	15.80							27
									10
									12
									11
									13
									22
									9
~~Juos~~									

FOREST PROGRESS REPORT

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of

Vegetation Type Pinon - Juniper — Non-Permanent Transect # P-24

T 2S R 99W S 15 1/4 1/4 S NESW — Transect Length 100m

Aspect (degrees) 120° — Slope (degrees) 7 — Elevation (feet) 7000

Field Analyst(s) Jim Baker + DFK — Date 9/13/75

Site Description Thin, silky soil; ~~[illegible]~~ grazed — QA Check PAm 10/1/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	5	41	47	27	11	3	Poor
2 Chvi	020	4,5	12	22	7	12	4	
3 Pi tr	024	7	2	6	18	3	—	
4 Gusa	012	4,5	43	6	1	2	7	
5 Teca	031	2	10	0	0	0	0	
6 Pied	002	—	4	3	3	3	2	
7 Pi t	032	7	3		10	9	4	
8 Tuos	001	—	2	2	3	0	1	
9 Opfo	037	2 —	1	0	0	0	0	
10 Chna	019	4,5	0	0	2	0	—	
Atco	016	2	Intercepts (m) 0	0	1	0		

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Artr	2.20	2.67	3.[illegible]	9.[illegible]	11.[illegible]	11.53	3.45	4.00	6.05	[illegible]
	16.10	16.47	16.[illegible]	1[illegible]	[illegible]	[illegible]	1.20	1.75	[illegible]	[illegible]
	12.22	12.51	13.35	13.[illegible]	15.[illegible]	14.55	14.[illegible]	15.72	4.75	5.04
Amut	4.81	4.91	5.18	5.76	6.[illegible]	7.04	7.28	7.60	7.81	8.02
	8.24	9.72	15.92	17.60	18.16	20.0	14.02	14.13		
Chvi	10.18	10.[illegible]	10.[illegible]	10.[illegible]	4.12	4.38				
[illegible]Tr	0.3	0.89	1.[illegible]	12.[illegible]	12.[illegible]	12.[illegible]	16.15	16.[illegible]	4.29	[illegible]
	4.97	5.10	6.87	7.20	[illegible]	17.53				
Teca	4.95	4.58	5.13	5.17	5.47	5.54				
[illegible]	4.[illegible]	5.02								

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LINE-STRIP DATA SHEET
MATURE TREE STRATUM

Project 83

Sheet 1 of 1

Vegetation Type Piñon - Juniper Transect # P-26 Type PHH-permanent

15 R 98W S 31 1/4 1/4 S SE1/4 Transect Length 100m

Aspect (degrees) 50 Slope (degrees) 20 Elevation (feet) 6500

Field Analyst(s) DfK + JB Date 9/14/75

Site Description Shallow rocky soil, lg dead ~~trees~~ DJ QA Check RBM 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Pied	002	—	1	—	1	~~2~~	—	normal
2 Juos	001	—	1	4	4	4	5	normal
3								
4								
5								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
Pied	13.35	14.12	2.12	3.42					7
									~~10.5~~ 15
									~~6~~
									8
									21
									Col 1 / Col 2
Juos	12.70	15.34	15.72	15.47	16.42	18.80	11.90	14.18	30 / 40
	13.91	15.33							~~40~~ 50 / 42
									21 / 9
									12 / 10
									15 / 13
									12
									~~43~~ 40
									42
									35
									20
									50
									30

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

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Sheet 1 of 1

Vegetation Type Pinon Juniper Non-Permanent Transect # P-25

T 25 R 99W S 20 1/4 1/4 S SE NW Transect Length 100 m

Aspect (degrees) 140 Slope (degrees) 10 Elevation (feet) 7470

Field Analyst(s) DFK & JB. Date 09/13/75

Site Description Al. Mesic, Porthupine slope, Clay loam QA Check [illegible] 10/3/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	4	56	50	25	20	43	Normal
2 Chvi	020	4,5	10	14	11	15	10	
3 Amut	032	7	16	13	18	21	19	
4 Gusa	012	4,5	1	2	4	14	9	
5 Putr	024	7	2	4	6	7	4	
6 Tesa	031	2	6	21	3	0	0	
7 Pied	002	—	0	1	4	7	5	
8 Juos	001	—	1	1	0	0	0	
9 Orno	037	2	1	1	0	0	0	
10 Syor	033	7	0	0	15	12	15	

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Artr	0.55	.78	4.04	4.27	5.41	6.12	[illegible]	5.10	9.72	[illegible]
	17.80	17.95	18.20	[illegible]	3.91	[illegible]	[illegible]	[illegible]	9.21	[illegible]
	9.59	[illegible]	13.35	[illegible]	16.54	16.[illegible]	[illegible]	16.73	[illegible]	[illegible]
	16.10	16.20	15.70	16.33	19.48	[illegible]	[illegible]	[illegible]	4.38	[illegible]
	8.52	8.[illegible]	18.95	9.08	19.38	[illegible]	[illegible]	7.93	8.60	[illegible]
	9.95	[illegible]	10.60	[illegible]	10.95	11.25	[illegible]	[illegible]	13.50	13.65
	15.70	16.75	17.60	18.40	18.62	[illegible]	19.[illegible]	[illegible]		
Syor	17.31	[illegible]								
Chvi	[illegible]	[illegible]	5.81	[illegible]	[illegible]	[illegible]				
Putr	11.87	[illegible]								
Pied	0.20	9.50	[illegible]	10.40	10.95	11.75				
Amut	[illegible]	[illegible]	18.40	[illegible]	[illegible]	[illegible]	0.	0.3	2.78	4.29
	5.60	7.15	8.95	10.54	16.30	18.40	0.	1.9	2.75	[illegible]
	4.60	5.10	10.33	10.86	11.10	11.56	12.78	13.18		
Orno	[illegible]	4.58	11.49	11.77						
Syor	6.35	6.32	17.02	[illegible]	6.12	6.30	[illegible]	[illegible]	6.60	[illegible]

LINE-STRIP DATA SHEET
MATURE TREE STRATUM

C.J.J.S

Project X 3

Sheet 1 of 1

Vegetation Type Pinyon - Juniper Transect # P-27 Type NP ?

T 15 R 99W S 10 1/4 1/4 SE of SW Transect Length 100. meters

Aspect (degrees) 120° Slope (degrees) 14° Elevation (feet) 6800

Field Analyst(s) J. Baker . E.G. Uphoff Date 9-17-75

Site Description Old junipers mostly dead. QA Check Rom 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Pied	002							
2 Jmos	001	—	1	0	2	1	2	normal
3								
4								
5								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
Pied									
Jmos	13.10	15.51	2.75	8.65					18, 18, 53, 85 45, 43

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

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Vegetation Type Piñon-Juniper Non-Permanent Transect # P-2

T 15 R 9W S 31 1/4 1/4 S SE NE Transect Length 100m

Aspect (degrees) 50° Slope (degrees) 20 Elevation (feet) 6500

Field Analyst(s) JB & DFK Date 9/14/75

Site Description shallow rocky soil, w/ damaged dead P+J QA Check Rom 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Arte	014	5	4	24	20	6	60	normal
2 Juvi	020	4,5	14	8	8	5	9	
3 Gusa	012	4,5	23	27	40	20	18	
4 Opun	037	2	1	1	13	0	4	
5 Pied	002	-	2	5	3	11	1	
6 Yucca	001	-	0	0	2	0	4	
7 Eula	022	5,6	0	1	4	5	0	
8 Syor	033	7	0	0	0	3	4	
9 Ampe	032	7	0	0	0	1	0	
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Arte	5.57	5.73	11.20	11.26	7.42	7.84	17.27	17.51	18.21	18.41
	5.80	6.05	6.23	6.80	12.65	13.40				
Yucca	15.30	15.99								
Juvi	1.40	1.85	4.54	4.82	10.74	10.89	6.11	7.07	5.77	6.19
Gusa	9.12	9.25	4.0	4.50	3.64	3.93				
Pied	10.09	10.24								
Syor	13.20	13.39	14.78	14.92						
Opun	0.10	.30								

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Project $3
Sheet 1 of 1

Vegetation Type Rabbit Brush Transect # RB2 Type Perm
T 15 R 99W S 35 1/4 1/4 S SFNW Quadrat Size .5m²
Aspect (degrees) 195 Slope (degrees) 1% Elevation (feet) 6600
Field Analyst(s) K. Voriés & C. Haynes Date 13-IX-75
Site Description NA QA Check rmm 10/1/75

Species	Code #	Phenology Code	HT	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Elymus cinereus	200	6 - 164			8		25		50		55		90		50		45		8		50		20
Agropyron smithii	052	2 - 46			6		4		1						1						1		
Poa interior (Hesperostipa)	KV 106	6 - 43			16		3		4		15		2		8		8		4		4		1
Chenopodium fremontii	198	2 - 4						6	1														
Juncus balticus ssp. arcticus ater	306	5 - 82									1						8		10				
Distichlis stricta	KV 363	5 - 41															2		18		2		2
Aster campestris	KV 360	4 - 12																		2	1		

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

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Vegetation Type Pinyon-Juniper Non-Permanent Transect # P-27

T 15 R 99W S 10 1/4 1/4 SE of SW Transect Length 150 meters

Aspect (degrees) 120° Slope (degrees) 14° Elevation (feet) 6700

Field Analyst(s) Gallaghoff & T. Baber Date 9-17-75

Site Description Rock & sand substrate, old gun. pers mostly dead QA Check rom 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Chvi	020	4,5	7	4	5	3	4	normal
2 Cemo	017	2,7	8	12	6	#11	8	
3 ~~Sypa~~ Putr	024	2,7	0	0	0	4	0	
4 Atco	016	2	1	8	2	0	0	
5 Pied	002	—	1	2	1	0	1	
6 Juos	001	—	0	0	0	0	0	
7 Epri	021	2	2	0	5	0	0	
8 Gusa	012	4,5	2	0	0	0	0	
9 Artr	014	5,6	0	0	1	0	0	
10								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Chvi	1.49	1.71	13.78	14.03	14.68	15.07	14.80	15.31		
Cemo	1.56	1.72	.10	1.25	17.87	18.31	3.59	3.97	4.15	4.43
Sypa										
Atco	3.48	3.95								

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

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Sheet 1 of 2

Vegetation Type Rabbitbrush Non-Permanent Transect # RB-7

T 2S R 98W S 17 1/4 1/4 S SW/SW Transect Length 100 m

Aspect (degrees) 50° Slope (degrees) 0 Elevation (feet) 6570

Field Analyst(s) Jim Baker + DFK Date 13 Sept 1975

Site Description Burnt Ranch Land: Clay soil QA Check pmm 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Chna	019	4,5	3	7	8	12	14	normal
2 Artr	014	4,5	41	9	4	6	11	
3 Save	029	6,2						
4 Chvi	020	4,5	130	137	105	113	126	
5								
6								
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Chna	2.85	3.05	15.0	15.47	[illegible]	3.98	[illegible]	6.55	15.83	15.95
	3.30	3.40	9.0	9.9	9.15	10.25				
Chvi	0.14	0.30	1.0	1.20	2.52	2.70	2.78	3.12	3.28	5.10
	5.20	5.57	6.0	6.24	6.65	7.75	8.25	8.72	9.42	[illegible]
	11.05	12.92	13.98	14.40	15.50	16.75	17.32	17.56	18.00	20.0
	0-.48	.72-.90	1.20	1.35	1.52	2.10	2.28	[illegible]	2.85	[illegible]
	4.42	6.63	7.03	7.12	8.90	[illegible]	[illegible]	[illegible]	9.50	9.58
	11.65	12.50	12.95	13.30	13.40	[illegible]	13.70	13.75	13.96	14.60
	14.85	15.52	17.99	18.34	0.	1.10	2.15	3.82	2.95	4.10
	4.11	4.34	4.62	6.40	9.47	9.80	9.75	9.90	10.48	11.56
Arty	0	0.19	10.25	10.55	[illegible]	[illegible]		[illegible]		

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Vegetation Type Rabbit brush Transect # RB-1 Type Perm

T 15 R 99W S 33 1/4 1/4 S NESE Quadrat Size .5m²

Aspect (degrees) 100° Slope (degrees) 2% Elevation (feet) 6800

Field Analyst(s) K. Davies & C. Uptaff Date 9-16-75

Site Description NA QA Check [illegible] 9/15/75

Species	Code #	Phenology Code / Ht	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Elymus cinereus	200	7/95		12		8		4		12		3		12		18		34		8		2
Bromus tectorum	067	8/22		6		16		20		3		16		3		28		2	1	1		
Chenopodium [illegible]	198	4/14													1	tr					3	
Artemisia ludoviciana	147	6/30																	3	2		

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

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Sheet 1 of 1

Vegetation Type Rabbitbrush Non-Permanent Transect # RB-8

T 15 R 98W S 16 1/4 1/4 S SW/SE Transect Length 100m

Aspect (degrees) 30° Slope (degrees) 0 Elevation (feet) 6300

Field Analyst(s) BJ, BT + DFK Date 9/14/75

Site Description Burned bottom land Clay soil QA Check nm 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 23					Condition
			1	2	3	4	5	
1 Chvi	020	45	33	41	46	41	42	normal
2								
3								
4 Artr	014	4,5	5	4	1	2	12	normal
5								
6								
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Chvi	2.65	3.87	5.60	5.88	9.15	9.22	10.74	12.12	12.48	13.90
	17.90	20.00	0.	0.42	1.48	4.21	7.42	8.33	8.51	10.36
	10.00	12.57	15.62	15.93	17.34	19.02	2.05	2.50	3.44	5.82
	6.00	6.65	7.70	9.64	9.80	10.03	11.79	13.28	13.35	14.05
	14.43	15.17	15.30	15.40	15.74	16.55	16.80	18.35	18.83	20.00
	0.00	0.70	2.00	2.38	2.70	3.24	3.47	4.11	4.20	4.35
	4.51	5.15	5.36	6.69	6.37	6.75	1.83	2.18	7.42	8.40
	9.00	9.13	10.6.	11.78	11.98	12.96	13.27	13.70	14.00	15.25
	15.72	17.00	17.20	17.26	0.42	0.64	2.75	4.83	5.24	5.55
	11.43	12.61	13.63	14.61	16.10	17.10	17.82	20.00		
Artr	6.47	8.75	6.87	7.50	1.56	2.42				

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Vegetation Type Rabbit Brush Transect # RB6 Type Perm
T 1S R 98W S 30 1/4 1/4 S NESW Quadrat Size .5m²
Aspect (degrees) 90° Slope (degrees) 2% Elevation (feet) 6400
Field Analyst(s) Vories + Haynes Date 13-IX-75
Site Description NA QA Check RMM 11/1/75

Species	Code #	Phenology Code / Ht	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Sitanion longifolium	112	8 - 18		4				10														
Bromus tectorum	067	8 - 18		1																		
Agropyron smithii	052	2 - 18		2		1										18		18				
Lepidium montanum KV sp	247	5 - 30	3	1			1	1														
Chenopodium fremontii	198	7 - 48	4	1	2	t	2	t													4	1
Elymus cinereus	200	2 - 60								12		6								1		2
Poa sp. (Poa interior KV)	106	7 - 56												6		4						
Agropyron sp. (trachycaulum KV)	054	7 - 62												30								

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LINE-STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

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Sheet 2 of 2

Vegetation Type Rabbitbrush Permanent Transect # RB-69 Date @ 9/18/75

pom 10/7

Species	I_1	I_2	Dia	I_1	I_2	Dia	I_1	I_2	Dia	I_1	I_2	Dia
Chrys	14.43	14.60		16.96	17.10	17.32	17.44	17.68	17.79	17.86	18.20	
	18.31	18.40		18.52	18.75	19.14	19.80	0.32	0.50	1.16	1.30	
	1.76	2.10		6.25	6.46	6.59	6.82	0.54	0.89	2.42	2.54	
	3.03	3.14		5.85	7.26	10.36	10.50	11.04	11.41	11.97	12.23	
	12.58	12.76		16.42	16.63	16.80	20.00					

RBOSP RESOURCES REPORT

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SHRUB, TREE SEEDLING STRATUM

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Vegetation Type Rabbitbrush Non-Permanent Transect # RB-7

T 25 R 9&W S 17 1/4 1/4 S SW/SW Transect Length 100 m

Aspect (degrees) Flat Slope (degrees) 0 Elevation (feet) 6520

Field Analyst(s) Baker, Hedge Date 13 Sept. 25

Site Description burned bottomland QA Check DRM 10/7/25

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
[illegible]	12.30	13.10	13.48	14.55	13.42	14.20	14.62	14.72	14.95	[illegible]
	15.40	15.80	17.48	18.07	18.91	19.30	[illegible]	[illegible]	1.31	1.03
	1.73	1.79	3.68	3.54	6.32	6.95	[illegible]	3.25	9.90	[illegible]
	10.40	10.45	10.60	10.85	[illegible]	[illegible]	[illegible]	13.55	[illegible]	[illegible]
	15.45	15.90	[illegible]	[illegible]	10.40	[illegible]	0.0	0.75	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.95	[illegible]	10.10	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]						

FOCUS PROGRESS REPORT

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Vegetation Type Riparian Transect # R-2 Type Perm
T 15 R 98W S 30 1/4 1/4 S NESW Quadrat Size 5 m²
Aspect (degrees) 15° Slope (degrees) 2% Elevation (feet) 6350
Field Analyst(s) K. Yates & C. Haynes Date 13-IX-75
Site Description NA QA Check rsm 10/1/75

Species	Code #	Phenology Code	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Agropyron repens	305	5 - 95		85		30										1		10				10
Elymus cinereus	200	5 - 93				20		60		75		75		25		50		4		65		60
Kochia iranica	265	4 - 37			120	14																
Chenopodium hybridum	059	5 - 52			6	3	2	4											1	1	2	4
Chenopodium album	268	5 - 56			1	1							4	10								
Agropyron smithii	052	2 - 33						2														
Poa sp. (vernalis? NICRIOR KV)	106	6 - 36						18				10		3		18						8
Erigeron speciosus (-ifer sp. KV)	275	5 - 45							7	10					4	2	1	1				
Solidago sp. (multiradiata citrosa KV)	254	2 - 36							6	2												
Lepidium sp. (montanum KV)	247	2 - 5											1	1								
Taraxacum officinale	203	2 - 2											8	1	16	4			1	t		
Descurainia pinnata	255	8 - 44											3	1								
Sitanion longifolium	112	7 - 67																10				
Hordeum brachyantherum	124	7 - 70																50		8		
Carex (lanuginosa sp. KV)	097	5 - 70																15				
Ranunculus cymbalaria	307	2 - 15																6				

REOSP

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83 C = 2.6

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 2

Vegetation Type Rabbit brush Non-Permanent Transect # RB-C

T 15 R 98 S 8 1/4 1/4 S SWNE Transect Length 100m

Aspect (degrees) 100° Slope (degrees) 0 Elevation (feet) 6300

Field Analyst(s) J. B + DFK Date 9/18/75

Site Description Clay soil much Chenopodium sp QA Check rom 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Chvi	020	2, 4,5	131	148	138	74	105	Prev, sen'l
2 Chna	019	4,5	—	1	—	1	—	perenn'l
3 Gusa	012	5,6						
4 Artr	014	5, 6	15	3	8	3	9	
5 Save	029	7,2	28	12	14	19	2	
6								
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Chvi	0.	1.10	3.75	4.54	4.80	5.02	5.12	7.12	8.38	8.4[illegible]
	8.48	8.98	10.25	10.36	12.32	12.68	12.82	12.95	13.21	13.54
	14.67	14.89	14.99	15.40	15.84	16.20	16.46	16.88	[illegible]	[illegible]
	17.71	17.92	0.15	0.61	1.52	3.10	7.25	7.44	7.91	8.07
	8.22	8.50	8.96	9.12	9.31	9.38	10.90	11.17	[illegible]	13.54
	13.99	14.82	~~15.08~~	~~15.21~~	~~15.32~~	~~15.37~~	15.91	16.03	17.82	17.89
	18.40	18.52	1.05	1.29	5.85	6.45	6.61	6.96	9.46	9.72
	10.41	10.57	10.93	11.22	11.86	12.67	12.96	13.13	13.45	13.78
Artr	1.45	1.50	4.85	4.96	5.62	5.73	8.86	9.13	8.62	8.90
Save	2.13	2.17	4.41	4.44	6.01	5.13	7.69	8.30	9.00	9.21
	9.31	9.51	10.52	11.16	17.62	17.73	36.50	6.62	6.94	8.03
	~~15.32~~	~~15.37~~	15.08	15.21	0.95	1.10	13.90	14.09	15.12	15.89
	2.06	2.32	2.75	3.40	4.34	5.18	8.80	8.09	8.83	9.[illegible]
	14.32	15.00	17.81	17.87	19.42	20.00				

RBOCP PROGRESS REPORT

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 3

Vegetation Type Riparian — Non-Permanent Transect # R-8

T 25 R 100W S 23 1/4 1/4 S NW SE — Transect Length 100 m

Aspect (degrees) 270° — Slope (degrees) 0 — Elevation (feet) 7600

Field Analyst(s) DKF UB + DFK — Date 7/16/75

Vegetation Classification — QA Check

Species	Code #	Phenology Code	1	2	3	4	5	Condition
1 Pin	044	6	33	23	10	7	26	normal
2 Riba	040	6	17	3	0	0	2	
3 RoWO	041	2,6	44	20	113	1	14	
4 Svor	033	2,6	30	58	64	29	54	
5 Prvi	023	2,6	11	0	0	0	6	leaves w/ spots
6 Amla	032	2,6	6	14	13	4	5	normal
7 Sal	034	2,6	0	0	0	0	0	
8 Symphoricarpos	C30	2	10	0	0	0	0	
9 Potr	003	2	42	23	13	17	12	
10 Pinus	026	2	5	0	0	0	0	

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Pin	0	0.18	0.70	0.99	1.15	1.22	1.30	1.40	2.95	[illegible]
	3.00	3.05	3.45	4.00	5.25	5.30	5.31	5.59	6.30	[illegible]
	19.28	19.35	0.22	0.34	0.35	0.41	7.43	7.56	7.82	8.18
	3.25	5.21	9.99	10.28	11.45	11.52	15.10	15.43	15.50	15.81
	16.38	11.57	16.85	16.98	17.15	17.27	17.74	12.83	19.85	19.91
RoWO	5.95	6.16	6.40	6.61	6.75	6.84	8.35	9.10	0.75	6.35
	2.55	2.69	3.22	3.40	4.51	4.59	5.62	5.98	6.40	6.73
	7.25	7.30	7.85	7.94	8.32	8.38	8.30	9.44	9.5[illegible]	10.04
	10.30	10.74	11.07	11.70	12.67	13.00	13.41	13.46	13.65	13.78
	13.82	14.01	14.78	14.83	15.80	16.00	18.41	18.63	19.12	19.27

[illegible] PROGRESS REPORT

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T.25, R.7W, S.14 (SE/NW)

Asp. 12°, Slope 1%

Elevation 6700'

QUADRAT DATA SHEET

HERBACEOUS STRATUM

C.227

Project 83

Sheet 1 of 1

Vegetation Type R. parviflora Transect # R-1 Date 9-16-75

Kim Harris & C. Mitchell Perm 10/1/75 Permanent

Quadrat Number .5m²

Species	Code #	Phenology Code / HT	1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Erigeron speciosus Aster sp.	275	5/30	350	60			1	1			63	12	44	8	127	24	160	25	15	2		
Agropyron repens	305	2/32		40		98		98		98		70		82		55		26		5%		
Taraxacum officinale	203	2/4			1	1			1	1			8	2								
Poa pratensis	107	2/6										10		5								
Solidago cilliosa	254	2/6													96	18						
Juncus balticus arcticus, platyr	306	6/42																40				71
Ranunculus cymbalaria	307	6/10															28	6	85	16	13	6
Senecio spartioides Hartmania sp.	367	6/15																	165	8	1.5	8
Triglochin maritima	144	6/55																	2	2		
Carex rostrata	387	2/22																		1		
Spergularia rubra	308	6/25																		1		
Eleocharis macrostachya	354	6/36																				10
Carex lanuginosa	047	2/30																				4

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LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 2 of 3

Vegetation Type Riparian Non-Permanent Transect # R-8 Date 9/16/75

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Amut	17.01	17.19	19.70	19.74	7.58	8.57	9.80	10.41	11.60	11.93
Amal										
Syor	1.00	1.07	9.51	10.90	11.50	11.55	19.05	19.13	1.77	2.35
	2.42	4.50	5.50	5.60	6.02	6.20	6.38	6.56	7.12	7.23
	7.97	8.24	10.32	10.38	10.75	10.95	11.00	11.08	11.54	11.61
	11.95	12.15	12.30	12.38	12.54	12.58	14.67	14.75		
	3.02	3.15	6.10	7.35	8.30	10.15	15.34	15.44	17.02	17.17
	18.21	18.33	18.43	18.62	18.84	18.92				
Prvi	3.35	5.48	5.95	5.65	6.52	6.75	6.70	8.54	9.00	9.42
	18.73	18.93	10.30	10.61	13.35	13.47				
Potr	2.70	4.30	9.18	8.75	9.59	9.64	14.00	14.50	15.87	16.52
	17.20	17.32	0	1.99	3.30	4.70	5.11	5.60	5.80	6.16
	6.95	9.80	18.62	18.91	4.85	5.49	14.85	15.03	8.10	8.43
Sglu	1.03	1.08	1.70	2.30	3.20	4.18	5.56	7.50		
Chir										

RSOSP PROGRESS REPORT

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

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Project 83
Sheet 1 of 1

Vegetation Type Riparian Transect # R3 Type Perm
T 15 R 98W S 30 1/4 1/4 S NW SE Quadrat Size .5m²
Aspect (degrees) 15° Slope (degrees) ~~1~~ 1% Elevation (feet) 6350
Field Analyst(s) K. Vorisek C. Haynes Date 13-IX-75
Site Description NA QA Check rom 10/11/75

Species	Code #	Phenology Code / Ht	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Elymus cinereus	200	7 - 140		90		85		90		70		80		80		70				35		
Chenopodium hybridum	059	4 - 54	1	1															1	4		
Taraxacum officinale	203	2 - 6			1	t																
Agropyron smithii	052	2 - 25					2		2									90		6		12
Chenopodium album	268	8 - 67							3	8												
Descurainia pinnata	255	8 - 90											1	2	3	2						
Chenopodium fremontii	198	3 - 22											3	1								
Caryx lanuginosa ssp. ku	097	2 - 22														6						5
Plantago major ssp. ku	371	2 - 8																	2	3		
Poa praetensis	107	7 - 48																		2		
Stanleya longifolium	112	7 - 53																				4
Aster sp. Erigeron speciosus ku	275	4 - 41																			22	6
~~Caryx sp 2~~																						
Juncus balticus arcticus ssp. ater	306	6 - 46																				20

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 2

Vegetation Type Riparian Non-Permanent Transect # R-9

T 15 R 99W S 30 1/4 1/4 S WE of NW Transect Length 100 M

Aspect (degrees) 45° Slope (degrees) 0 Elevation (feet) 7,100

Field Analyst(s) J Baker; G. Upshaw Date 9-17-75

Site Description Cottonwood Springs QA Check RDM 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Axtx	014	5	38	21	37	139	60	normal
2 Rowo	041	6	37	12	1	5	12	
3 Riau	040	6		3	1	45	9	
4 Chna	019	4,5	15	15	12	36	2	
5 Riin	044	6,2		4		3		
6 Amatut	032	2,	1	5				
7 Sypr	033	6,2 2,	15	9	24	10	2	
8 Chvi	020	5	1					
9 Atco	016	2					3	
10 Gusa	012	5					1	

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Axtx	7.72	7.85	9.70	11.53	16.30	17.07	19.50	20.5	0.0	1.32
	6.24	9.07	9.07	9.93	11.68	12.39	12.52	15.24	17.37	18.53
	4.16	6.47	9.39	9.99	15.36	16.71	18.25	18.31	19.47	20.0
	0.0	0.15	2.79	2.87	3.64	3.75	4.32	4.37	4.50	4.55
	5.00	6.43	7.49	7.70	7.87	11.34	11.71	12.32	12.50	12.89
Chvi	8.71	9.26								
Rowo	11.99	12.30	13.32	13.99	14.26	14.43	14.84	16.08	17.54	17.77
	17.93	18.25	18.30	19.15	20.00	20.50	0.95	2.79	3.20	3.33
	2.61	2.77	3.72	4.35	19.37	19.72				
Chna	10.01	10.62	11.21	11.35	11.40	11.62	12.25	12.56	12.61	12.74
	17.35	17.78	18.10	18.20	15.77	16.25	3.55	3.99	4.10	4.23
	17.24	17.87	3.15	3.27	3.36	3.66	4.83	4.89	7.70	8.15
	8.30	9.02	9.21	9.47	9.71	10.54	10.76	11.23	12.74	16.25
	18.43	19.12	2.72	4.48						

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

C227

Project 83

Sheet 2 of 3

Vegetation Type Riparian — Non-Permanent Transect # R-8

T 2 S R 100 W S 23 1/4 1/4 S NW/SE — Transect Length 100 m

Aspect (degrees) ~70° — Slope (degrees) 0 — Elevation (feet) 7600

Field Analyst(s) JBt DFK — Date 9/16/75

Site Description oil shale stream bottom — QA Check rom 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	6	0	1	6	6	4	10 sh...
2 Bame	004	—	0	1	0	0	0	
3 Chna	019	5	1	1	1	0	0	
4 Rice	042	6	0	1	1	0	0	
5								
6								
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Artr	8.75	9.70	10.82	12.90	15.57	15.89	18.75	20.00	3.50	5.05
	5.05	6.25	6.80	7.64	9.72	11.54	11.70	11.81	10.00	3.10
	17.60	18.23								
Artr	7.41	7.50								
Rice	9.40	9.50								

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.2.2.8

Project 83

Sheet 1 of 1

Vegetation Type Sagebrush Transect # S-1 Type Perm

T 15 R 98W S 24 1/4 1/4 S SENE Quadrat Size .5m²

Aspect (degrees) 70 Slope (degrees) 2% Elevation (feet) 6520

Field Analyst(s) Kim Vories & G. Uphoff Date 9-15-75

Site Description NA QA Check RVM 10/1/75

Species	Code #	Phenology Code	Ht	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Sphaeralcea coccinea	181	2/5		18	2	1	tr.	1	tr			2	tr.	2	tr.	2	1	1	tr				
Hoplophyllus wattsii	155	2/6		2	1																		
Oryzopsis hymenoides	188	2/20			2		3				2		2		2		1		1		tr		2
Phlox hoodii	209	2/2		3	1	1	tr.	5	2	7	3			1	tr.					3	2	4	3
Ipomopsis congesta	264	5/2		2	1							1	tr.										
Antennaria pulcherrima	302	2/1		1	1			1	tr.														
Poa Sandbergii	108	2/12					4		6		2		2		tr.		1		tr.		tr.		tr.
Ceptanthus sonicea	194	2/2				16	2			6	2											1	tr.
Astragalus chamaeleuce	208	2/2								1	tr.											1	tr.
Agropyron trachycaulum	054	2/20															1						
Sitanion longifolium	112	8/16															tr						

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C.227

LINE-STRIP DATA SHEET
MATURE TREE STRATUM

Project ?

Sheet 1 of 1

Vegetation Type Riparian Transect # R-8 Type non permanent

T 15 R 95W S 30 1/4 1/4 S NE/NW Transect Length 100 m.

Aspect (degrees) 70° Slope (degrees) 0 Elevation (feet) 7,100

Field Analyst(s) BAKER / KEEFE Date 9-17-75

Site Description oil shale stream bottom QA Check 12 DM 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Conditio
1 Potr	003	2	2	5	8	3	0	normal
2								
3								
4								
5								

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
Potr	3.70	5.30	7.95	9.30	12.00	14.30	16.00	18.53	14.75
	2.55	5.35	6.70	10.52	12.50	15.67	9.35	10.00	5.00
	14.50	15.35	15.90	18.20	19.20	20.60	9.90	11.55	3.5
	15.50	15.75							5 3
									3.0
									2.75
									12.75
									3 25
									3.00
									5.00
									8.25
									6.25
									3.25
									5.00
									4.5
									3.0
									3.00
									4.25

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.228
Project 83
Sheet 1 of 1

Vegetation Type Sagebrush Transect # S-3 Type Perm
T 2S R 100W S 16 1/4 1/4 S NENE Quadrat Size .5m²
Aspect (degrees) 85 Slope (degrees) 20% Elevation (feet) 8530
Field Analyst(s) K. Davies & G. Uphall Date 9-16-75
Site Description NA QA Check Perm 10/1/75

Species	Code #	Phenology Code / Ht	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Carex geyeri	160	2/25		18		36		40		12		2		14		40		4		10		
Stipa columbiana	300	7/80		8		6				6		24		3		2		8		8		1
Agropyron smithii	052	2/53		1		1						1										
Erigeron speciosus	275	6/22	11	2	6	2			6	2			14	4							1	tr
Lupinus caudatus	271	2/36	2	2	3	3	1	2			1	1	2	2			4	6				
Galium boreale	083	2/18	8	2	14	4	3	1	4	1	6	2	27	6	9	2	17	14	18	6		
Eriogonum umbellatum	188	2/8	16	6	7	5	2	1									5	4	4	4		
Achillea lanulosa	050	2/20			5	1			7	1												
Geranium richardsonii	084	7/30			3	6			1	2	1	2										
Ligusticum porteri ~~Cymopterus montanus~~	340	2/25					3	4														
Cannabina umbellata	280	2/21							6	2							5	2	8	12		
Agoseris aurantiaca	053	6/38										4										
Phlox longifolia	156	7/17									5	1										
Chamaedium ~~Geum~~	286	7/16									9	1										
Helianthella uniflora	283	7/22													23		11	5				
Astragalus tenellus	282	2/15	1														1	1	2	2		
Koeleria gracilis	090	2/8																		1		

PROOF PROCESS REPORT

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LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

Project 22
Sheet 2 of 2

Vegetation Type Riparian
Non-Permanent Transect # R-9
Date 9-17-85
from 10/2

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Eyor	13.08	14.80	18.20	18.28	9.10	11.80				
Riau	1.80	2.39	5.10	7.23						
Amal	10.22	10.36								
~~Sp~~ Eyor	13.20	13.25	16.66	17.34						
Artr	13.10	13.73	17.87	18.48	2.11	2.64	3.80	5.07	7.79	8.28
	17.39	17.73	18.94	18.99						
Guna	8.50	8.61								

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QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.228
Project 83
Sheet 1 of 1

Vegetation Type Sage Transect # S-5 Type Perm
T 25 R 99W S 8 1/4 1/4 S SESE Quadrat Size .5m²
Aspect (degrees) 340 Slope (degrees) 9% Elevation (feet) 7200
Field Analyst(s) Kim Davies & Co. Upshall Date 9-15-75
Site Description NA QA Check pdm 10/1/75

Species	Code #	Phenology Code / Ht	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Poa Sandbergii	108	2 / 10		4		4		1		4		4		2		2		6		5		7
Stipa Comata	115	2 / 20		2		4		tr		tr						1				1		1
Eriogonum Ostonii	230	8 / 10	7	2	2	1			12	2	10	2	4	1	5	1			2	tr	2	tr
Crustantha sericea	194	2 / 2	2	tr			6	1					3	1					3	tr		
Koeleria gracalis	090	7 / 16			2		4		2		2		5		1		2			1		12
Oryzopsis hymenoides	100	2 / 20							1													
Lupinus caudatus	271	8 / 12									1	1			1	2			1	1	1	1
Astragalus trachycarpus	054	7 / 56												1				tr				
Sphaeralcea coccinia	181	2 / 4											2	tr					9	1	4	1
Moss	152													1								2
Phlox hoodii	209	2 / 3															1	tr				

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.2228
Project 73
Sheet 1 of 1

Vegetation Type Sagebrush Transect # S-2 Type Perm
T 2S R 100W S 24 1/4 1/4 S SESE Quadrat Size .5m²
Aspect (degrees) 340 Slope (degrees) 8% Elevation (feet) 7800
Field Analyst(s) KV & DFK Date 9/17/75
Site Description NA QA Check RDM 10/1/75

Species	Code #	Phenology Code	Ht	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Phlox multiflora	157	8	5	16	22			1	1	3	4	13	35										
Poa sandbergii	108	2	7		3		10		12				1						12				
Penstemon caespitosus	103	2	4	1	T	5	3	6	6	4	2	1	1	11	10	9	3	2	1	7	4	3	2
Agropyron trachycaulum	054	2	25		T		1		1														
Lupinus caudatus	271	8	45	4	8	4	8			1	2					2	2	3	6	3	4		
Erigeron eatonii	230	2	2			2	T									7	2			4	2	3	1
Stipa comata	115	2	30					3															
Agropyron smithii	052	2	30					2		T							1		1				
Koeleria gracilis	090	7	2							2		1					2		2		1		3
Poa compressa	356	2	16							2		2		1			14				1		8
Penstemon fremontii	103	8	8							1	1			1	1			2	4			1	1
Castilleja linariifolia	266	2	10									1	T										
Tragopogon dubius	273	2	1											2	1					3	1		
Phacelia franklinii	175	2	2											2	1								
Orthocarpus luteus	100	2	33												1								
Sphaeralcea coccinea	181	2	6													2	1						
Moss	152																2						
Eriogonum umbellatum	128	2	3															1	1				
Hedysarum boreale	174	2	40																			6	20

USDA PROGRESS REPORT

ECI

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

CRSP

Project 83

Sheet 1 of 1

Vegetation Type Sagebrush Non-Permanent Transect # S-20

T 8 15 R 99 W S 13 1/4 1/4 S NW NW Transect Length 100 m

Aspect (degrees) 90° Slope (degrees) 2.5 Elevation (feet) 6500

Field Analyst(s) J.B + DFK Date 9/14/75

Site Description 8H Mesa, sparse herbaceous cover QA Check rpm 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	5,6,	117	85	64	53	74	normal
2 Chvi	020	5	3	0	2	1	0	
3								
4 Oppu	037	2	24	15	18	12	7	
5								
6 Save	029	6	1	0	2	0	0	
7 Eula	022	6	0	4	19	9	14	
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Artr	0.[illegible]	0.10	4.10	4.17	5.27	5.30	6.77	6.90	9.25	9.30
	9.78	10.11	10.38	10.69	12.68	13.21	14.49	14.71	15.45	15.66
	15.[illegible]	16.00	16.88	17.04	17.46	17.85	19.79	20.00	0.00	0.09
	3.60	3.94	4.48	4.79	5.36	5.44	6.75	7.28	7.48	7.58
	7.91	8.07	14.00	14.03	14.68	14.88	15.70	15.95	16.55	16.70
	4.13	4.95	5.51	5.61	7.20	7.28	8.29	8.37	9.55	10.15
	10.40	10.58	10.37	10.94	11.85	12.00	12.20	12.36	13.00	13.17
	13.48	14.24	14.35	15.16	16.54	16.67	18.42	18.54	19.60	18.75
	0.34	0.41	0.97	1.00	1.10	1.23	3.81	4.02	4.28	4.34
	8.30	8.40	14.19	14.25	14.93	15.10	15.22	15.32	17.70	18.09
	19.09	19.18								
Pine	4.83	5.04	2.98	3.17	3.					
Eula	2.19	2.26	12.58	12.77						

BOOR PROGRESS REPORT

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.2.2.8
Project 83
Sheet 1 of 1

Vegetation Type Sagebrush Transect # S-4 Type Perm
T 15 R 99W S 34 1/4 1/4 S SESE Quadrat Size .5m²
Aspect (degrees) 356 Slope (degrees) 2% Elevation (feet) 6600
Field Analyst(s) C. Uphof K Davies Date 9-16-75
Site Description NA QA Check pom 10/1/75

Species	Code #	Phenology Code	Hr	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Moss	152						1						5										
Sitanion longifolium	112	8/22					V		1		1		tr		1				1				
Physaria Floribunda	175	2/2						1	tr														
Euphoriba fendleri	867	2/2						1	1														
Chenopodium leptophyllum	286	6/20								7	2									3	tr		
Sisymbrium linifolium	319	1/2								2	tr												
Oryzopsis hymenoides	180	7/35										2				1						1	
Agropyron smithii	052	7/20										1		1		2		1		2		32	
Bromus tectorum	067	8/10												tr				tr		2			

LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

C.2.2.8
Project 83
Sheet 2 of 2

Vegetation Type Sagebrush Non-Permanent Transect # S-21 Date 9-17-75
spm 10/7/75

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Gusa	9.86	9.91	10.94	11.00	2.24	2.29	5.19	5.23		
Chiv	3.05	3.19	3.87	3.91	8.82	8.86	1.05	1.14	1.24	1.29
	4.81	1.91	2.38	2.58	6.45	6.62	16.06	16.18	17.35	17.48
	18.60	18.96								
Putr	12.77	13.14								
Artr	8.45	9.24	11.58	11.74	12.00	12.07	12.61	12.85	16.90	17.13

RBOSP PROGRESS REPORT

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.2.2.8
Project 83
Sheet 1 of 1

Vegetation Type Sagebrush Transect # S-11 Type Perm
T 2S R 99W S 14 1/4 1/4 SSW/NW Quadrat Size .5 m²
Aspect (degrees) 110° Slope (~~degrees~~) 3% Elevation (feet) 6800
Field Analyst(s) Kim Davies & Raphael Date 9-15-75
Site Description NA QA Check RDM 10/1/75.

Species	Code #	Phenology Code / Hr	Quadrat 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Ipomopsis aggregata	273	2/4	2	1																		
Sitanion longifolium		8/22		tr																		
Moss	152			tr		4		tr		1						4						
Chenopodium leptophyllum	286	2/8	-	-	3	tr	2	tr	3	tr	1	tr	3	2			1	1			3	tr
Lepidium montanum sp.	KV 247	6/20					3	1	39	6	6	1			10	4			3	1	2	tr
Kochia ivanica	265	6/12															1	1				

PROOF PROGRESS REPORT

LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

C228
Project 83
Sheet 2 of 2

Vegetation Type Sagebrush Non-Permanent Transect # S-22 Date 9/16/75 pm

Species	Intercepts (m)									
	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Chvi	00	0.60	0.87	0.94	0.20	0.30	1.46	1.452	2.50	2.57
	4.15	4.18	5.78	5.84	7.61	7.65	9.55	9.64	9.85	9.91
	10.40	10.51	11.20	11.22	11.87	11.98	12.52	12.73	12.80	12.89
	13.22	13.33	15.83	15.89	16.80	16.88	.45	.48	3.40	3.46
	4.21	4.23	5.35	5.37	5.81	5.91	6.62	6.65	11.35	11.43
	13.07	13.14	13.34	13.41	13.90	14.03	16.25	16.45	17.35	17.47
	19.75	19.83	19.89	20.00	4.64	4.69	6.67	16.89	9.88	9.97
	10.78	10.92	12.25	12.54	13.20 12.13	13.75	16.95	17.06	1.49	1.72
	4.67	4.85	9.55	9.64	9.75	9.81	10.71	10.86	13.36	13.45
	1.70	1.78	3.05	3.17	3.34	3.50	5.95	6.04	6.10	6.25
	6.43	6.47	6.70	6.73	6.87	6.94	7.84	7.92	8.92	9.07
	9.71	9.86								
Artr	12.40	12.47	14.04	~~14~~ 15.44	16.07	16.43	16.55	17.00	18.17	18.51
	1.40	1.67	1.94	2.11	2.23	2.44	2.80	2.87	4.28	4.96
	5.07	5.48	5.62	5.77	5.90	6.02	6.10	6.28	6.62	6.70
	7.42	7.99	7.12	8.90	9.20	9.68	9.94	10.02	10.19	10.24
	14.64	14.72	16.67	17.04	18.16	18.30				
→	1.84	2.13	2.23	2.27	2.00	2.46	4.20	4.36	4.42	4.54
	~~5.33 5.66~~	5.76	7.72	7.98	8.21	8.47	8.60	8.78	~~9.55~~	~~9.64~~
	~~9.45~~	~~9.91~~	~~10.00~~	~~10.57~~	~~11.20~~	~~11.22~~	11.50	11.58	13.33	13.62
	13.70	13.85	14.00	14.28	17.45	17.55	17.77	17.80	19.87	19.91
	3.73	3.76	4.52	4.60	4.69	4.75	4.79	4.82	4.87	5.02
	5.21	5.63	5.80	5.85	8.00	8.42	10.12	10.38	11.37	11.65
	11.97	11.95	14.13	14.34	15.35	15.59	17.32	17.56	18.05	18.31
	18.40	18.92	19.13	19.39	2.54	2.69	2.82	3.38	3.60	3.65
	4.79	5.40	5.50	5.64	6.22	6.35	7.42	7.65	9.32	9.38
	9.70	9.92	10.15	10.41	10.95	11.34	11.78	12.06	12.37	12.60
	12.93	13.04	14.45	15.24	16.40	16.70	17.14	17.28	19.91	20.00
	0.00	0.55	0.75	1.43	4.96	5.06	5.20	5.34	6.24	6.29
	7.72	7.76	7.84	7.91	8.50	8.56	8.67	8.68	9.02	9.05
	9.18	9.40	10.40	10.72	10.93	10.99	11.62	11.74	11.85	12.17

RBOSP PROGRESS REPORT

ECI

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

C.2.2.1

Project 83.

Sheet 1 of 2

Vegetation Type Sagebrush — Non-Permanent Transect # S-21

T 1S R 99W S 28 1/4 1/4 S NW of SW — Transect Length 100M

Aspect (degrees) 10° — Slope (degrees) 4° — Elevation (feet) 7200

Field Analyst(s) J Barker & G Ulphutt — Date 9-17-75

Site Description dry soil — QA Check pmm 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	5,6	83	58	68	79	65	normal
2 Amut	032	2	12	17	14	20	28	
3 Pied	002		1	0	0	1	0	
4 Gusa	012	5	7	8	27	10	1	
5 teca	031	2	6	1	2	0	0	
6 Chvi	020	5,6	1	60	76	74	57	
7 Syor	033	7	0	6	10	1	12	
8 Putr	024	7	0	1	0	3	0	
9 Chna	019	5,6	0	0	1	0	2	
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Artr	5.65	6.10	9.78	9.94	13.73	14.20	17.07	17.25	19.00	19.04
	1.50	2.04	3.25	3.94	7.52	7.91	9.88	10.83	11.78	13.24
	.32	.36	2.55	2.93	6.00	6.34	6.79	7.38	14.20	15.11
	9.62	9.75	9.94	10.12	11.61	11.79	15.55	16.04	18.33	19.00
	0.01	0.23	1.35	1.44	4.33	5.06	5.52	6.81	9.52	10.27
	12.05	12.26	14.53	14.64	18.34	18.68	4.75	5.49	7.91	8.07
Amut	1.60	1.70	1.84	2.13	4.04	7.96	7.50	8.57	8.81	8.89
	11.35	12.11	11.78	16.83	0.81	1.06	1.98	1.12	9.83	9.91
	10.15	10.43	10.74	11.15						
Syor	4.20	4.64	4.75	5.01	6.30	6.60	1.22	1.61	3.04	3.15
	4.12	4.89	5.09	5.63	10.12	10.50	14.23	14.28		
Teca	10.47	10.54								
Chvi	11.95	12.00	12.00	12.57	15.19	15.30	15.88	16.01	11.22	11.45
	13.40	13.50	14.94	15.28	18.21	18.37	0.59	0.68	2.71	2.83

RDCS PROCESS REPORT

C.228

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 2 of 2

Vegetation Type Sagebrush Non-Permanent Transect # S-23

T 25 R 99W S 24 1/4 1/4 S NW / SW Transect Length 100 m.

Aspect (degrees) 325 Slope (degrees) 6 Elevation (feet) 7100

Field Analyst(s) JB, DFK Date 9/13/25

Site Description Upland sage dry soil QA Check pwm 10/7/25

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Amut	032	7	0	0	2	0	0	normal
2 Pica	002	—	0	0	2	1	0	
3								
4								
5								
6								
7								
8								
9								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2

C.228

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 2

Vegetation Type Sagebrush — Non-Permanent Transect # S-22

T 25 R 99W S 17 1/4 1/4 S SWSE — Transect Length 100 m

Aspect (degrees) 90 — Slope (degrees) ~~3~~ 3.5 — Elevation (feet) 7400

Field Analyst(s) JB + DFK — Date 9/16/75

Site Description Clay-sand soil, sparse herbaceous cover — QA Check RDM 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	5,6	102	96	77	105	84	Normal
2 Rachra	019	6,7	0	0	0	1	0	
3 Chvi	020	6,7	66	86	77	56	62	
4 Gusa	012	5,6	10	7	2	1	5	
5 Oppa	037	2	1	0	0	1	0	
6 Syor	033	7	0	1	0	0	1	
7 Amut	032	7	6	3	6	9	12	
8								
9 Pied	002		0	1	2	0	0	
10								

Intercepts (m)

Species	?	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
~~Artr Gusa~~		~~1.84~~	~~2.13~~	~~1.23~~	~~1.27~~						
Pied		15.32	16.35								
Amal		1.00	1.15								

NAQSP PROGRESS PRINT

T 25, R 99W, S 8 NENW

Asp. 290° Slope 15% Elevation 7400'

QUADRAT DATA SHEET Permanent C.2.2.10

HERBACEOUS STRATUM

Project 83

Sheet 1 of 1

Vegetation Type Bald Transect # U1 Date 14-IX-75

Analyst: Vories + Haynes

Rem 9/23/75

Species	Code #	Phenology Code / Hr	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Haplopappus acaulis	153	2 – 4	7	4	15	8	12	14	3	4			1	t	6	5	4	2	3	2	3	2
Phlox hoodii	209	2 - 2	10	5					9	2	2	2										
Arenaria eastwoodii	288	2 – 2	1	t	4	1	3	1	2	t	8	2			1	1	6	1	1	t	2	1
Hymenoxys Hymenopsis acaulis	311	2 – 4	11	2			H	1	7	1			1	t	1	t					2	t
Astragalus spatulatus	292	2 – 2	4	1	5	1	5	1			2	1					4	1			2	1
Haplopappus nuttallii	155	2 – 4	2	1	9	3			1	1	4	2	4	1			21	5	8	2	28	5
Poa sandbergii	108	2 – 5		6		2		1		2		1		1		1				1		1
Leptodactylon pungens	134	2 – 2	2	1																		
Agropyron trachycaulum	054	2 – 17				1		1		2		1		4	8	1		3		3		3
Physaria floribunda	175	1 – 1			3	t					1	t							1	t		
Lygodesmia juncea	085	2 – 8					4	1					2	t								
Astragalus purshii	285	2 – 1					1	t	2	t			1	t					1	t	1	t
Penstemon caespitosus	103	2 – 4							1	1			1	t					3	1	5	2
Eriogonum brachyphyllum	172	6 – 18							2	1	3	2	5	2								
Euphorbia serpyllifolia	012	4 – 5							1	1	1	1	3	1			4	2				
Sphaeralcea coccinea	181	2 – 4									1	1										
Hedysarum boreale	174	2 – 3									1	1										
Comandra umbellata	280	2 – 16											7	2								
Cryptantha sericea	144	2 – 2											1	t								
Tetraneuris aggregata	273	1 – 1													2	t						
Erigeron pumilus	274	2 – 12													2	1						

BROAD PROGRESS REPORT

ECI

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.22.9
Project 83
Sheet 1 of 1

Vegetation Type Shad scale Transect # SS-1 Type Perm
T 15 R 94W S 34 1/4 1/4 S SENW Quadrat Size .5m²
Aspect (degrees) 192° Slope (degrees) 40% Elevation (feet) 8610
Field Analyst(s) Kim Yorks & S. Uphill Date 9-16-75
Site Description NA QA Check Rpm 10/1/75

Species	Code #	Phenology Code	Ht	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Haplopappus macronema var. Hallii	H195	2/12		1	2	2	1									2	3			2	1		
Eriogonum leptophyllum var. leptophyllum	172	4/12		2	1	2	1	13	6	15	7	3	2					2	2	4	2	2	1
Oenothera caespitosus	309	2/4		1	1							1	tr	1	tr			1	1				
Sphaeralcea coccinea	181	2/6										4	3			1	tr	1	1				
Oryzopsis hymenoides	109	2/18											tr		1								
Sitanion hystrix	52	8/24													2								

LINE-STRIP DATA SHEET

C.2.2.10

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 2

Vegetation Type Bald

Non-Permanent Transect # ~~18~~ 4-9

T 25 R 100W S 16 1/4 1/4 S NESE Transect Length 100m

Aspect (degrees) 140° Slope (degrees) 5° Elevation (feet) 8670

Field Analyst(s) JB & DFK Date 9/15/75

Site Description Rocky clay grazed QA Check Tmm 9/23/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Arfr	013	5, 6	192	202	336	537	467	normal
2 Gusa	012	5, 6	206	235	243	199	163	
3 Artr	014	5	3	4	0	0	0	
4 Teca	031	2	1	2	0	1	0	
5 Chvi	020	~~3~~ 2	0	0	0	0	2	
6								
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Arfr	8.15	8.24	8.62	8.68	13.75	13.88	15.55	15.56	17.28	17.31
	6.54	6.60	4.03	4.11	9.85	9.94	12.31	12.37	15.48	15.52
	19.08	19.20	19.22	19.27	3.38	3.45	3.75	3.81	12.75	12.86
	15.69	15.81	17.26	17.32	18.04	18.09	18.18	18.21	18.75	18.85
	19.05	19.15	19.60	19.68	0.00	0.05	.75	.84	1.95	1.22
Gusa	2.78	2.89	3.10	3.18	3.56	3.59	7.51	7.66	8.04	8.10
	9.24	9.37	9.60	9.72	14.15	14.27	14.99	15.12	17.58	17.80
	18.65	18.73	19.29	19.40	19.50	19.60	0.36	0.40	0.73	0.81
	1.70	1.76	3.54	3.60	4.75	4.82	8.54	8.61	11.25	11.36
	12.15	12.22	12.50	12.62	13.88	13.23	14.00	14.03	16.00	16.12
	17.45	17.52	18.33	18.39	18.74	18.90	0.10	0.15	3.45	3.57
	7.30	7.47	8.55	8.70	8.47	8.56	8.52	8.58	12.10	12.34
	16.43	16.50	18.58	18.67	19.44	19.53	3.42	3.5		
~~21~~	3.47	3.52								

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

C.229

Project 83

Sheet 1 of

Vegetation Type Shadscale Non-Permanent Transect # 555

T 1S R 99W S 15 1/4 1/4 S NE of NW Transect Length 100 meters

Aspect (degrees) 160° Slope (degrees) 35° Elevation (feet) 6650

Field Analyst(s) G. Uphoff & J. Babol Date 9-17-75

Site Description Fine broken soils, herbaceous layer sparse QA Check RDM 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Chvi	019	4,5	1	7	9	3	7	normal
2 Atco	016	2	61	44	26	33	77	
3 Artr	014	5	0	1	0	0	2	
4 Anfr	013	5	2	17	2	1	57	
5 Tecd	031	2,3	0	2	0	0	0	
6 Chvi	020	4,5	0	1	0	0	0	
7 Save	029	6,2	0	5	0	0	0	
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Atco	8.45	8.64	8.84	9.06	10.14	10.35	13.30	13.40	15.94	16.17
	16.90	17.26	13.77	13.84	15.67	15.86	16.23	16.61	17.70	17.77
	17.92	18.28	18.63	19.22	14.95	15.05	16.80	16.97	17.94	18.45
	18.68	18.75	19.12	19.18	0.17	0.31	13.25	13.93	14.01	14.17
	14.57	14.76	6.83	7.36	12.20	12.56	14.63	14.95	15.19	15.64
	17.44	17.78	17.86	18.26	19.10	19.66				
Anfr	6.20	6.31	6.64	6.68	16.77	17.02	2.17	2.38	15.87	16.17
	16.35	16.64	18.34	18.41						

RBOSP PROJECT RECORD

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

C.2.2.10

Project 83

Sheet 1 of 1

Vegetation Type Bald Non-Permanent Transect # UB-10

T 25 R 100W S 9 1/4 1/4 S N2 NE Transect Length 100 m

Aspect (degrees) 275 Slope (degrees) 15 Elevation (feet) 8500

Field Analyst(s) DFK & JTB Date 9/15/75

Site Description Rocky-clay; ridge top, grazed QA Check [illegible] 9/23/75

	Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1	Arfr	013	5,6	196	156	308	436	582	normal
2	Feca	031	6,2	1	0	0	3	6	1
3									
4									
5									
6									
7									
8									
9									
10									

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Arfr	1.10	1.20	4.36	4.46	7.78	7.87	8.44	8.47	15.88	15.95
	16.10	16.13	16.83	16.99	17.13	17.18	1.23	1.27	1.69	1.72
	5.54	5.56	5.84	5.90	5.97	6.03	7.37	7.40	17.12	17.20
	17.75	17.79	0.11	0.17	0.24	0.27	8.49	8.62	8.89	8.97
	9.08	9.15	15.30	15.36	16.37	16.50	17.22	17.29	17.46	17.44
	17.69	17.74	18.05	18.13	18.19	18.20	18.41	18.51	18.65	18.70
	19.01	19.04	2.40	2.45	3.60	3.78	~~4.98~~ ~~5.07~~	5.02	12.23	12.27
	13.05	13.08	14.57	14.70	19.82	19.87				

T2S, R100W, S4 NWSE
Asp. 312°, Clope 13% Elev. 8530

QUADRAT DATA SHEET Permanent C.2.210
HERBACEOUS STRATUM

Project 83
Sheet 1 of 1

Vegetation Type Upland Meadow Transect # U3 Date 14-IX-75
Analyst Vories + Haynes from 7/22/75

Species	Code #	Phenology Code / Hr	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Artemisia frigida	013	6 - 13	3	2	2	1			3	1							2	2	2	2	4	2
Poa sandbergii	108	2 - 8		18		2		3		12		5		4		4		4		6		6
Stipa comata	115																					
Agropyron trachycaulum	054	7 - 27		6		4		2				t		6		1		10		t		2
Penstemon caespitosus	103	2 - 2	6	3	12	8	10	2	5	2	3	1	12	6	15	6	4	2	7	3	2	1
Haplopappus nuttallii	155	2 - 6	2	1	1	t			1	1	1	1	4	2	1	t			5	2	2	1
Astragalus spatulatus	292	2 - 2	8	2	6	2	8	1	6	2	2	3	1	1					6	2	4	1
Haplopappus acaulis	153	2 - 24	3	1	3	1	10	3	6	2	1	1			4	3		10	4		10	4
Astragalus purshii	285	2 - 2	1	t	1	t	1	t					7	2			1	1			1	t
Eriogonum lonchophyllum	172	2 - 4					1	t			2	1			3	2		3	4		1	2
Artemisia dracunculus	257	6 - 25							3	4					5	4	1	2				
Linum lewisii	190	7 - 40									4	4										
Ipomopsis aggregata	273	2 - 2									8	2	2	1	2	1						
Oxytropis lambertii	101	2 - 8									2	1										
Eriogon pumilus	274	8 - 17									1	1										
Gutierrezia sarothrae	012												1	1	1	1			1	1		

ECI

Transcribed by RCD 9/30/75

LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

C.2.2.8
Project 83
Sheet 2 of 2

Vegetation Type Sagebrush Non-Permanent Transect # S-24 Date 9/17/75

Transcription ok RDM 10/7/75

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Syor	0.5	0.63	1.95	2.00	7.08	7.12	1.98	2.01	9.84	9.91
Artr	1.70	1.89	2.40	2.91	3.09	5.20	5.91	5.94	6.74	8.49
	9.80	10.17	11.37	12.10	12.30	13.59	13.80	13.97	14.05	14.21
	14.50	14.88	17.10	18.38	14.75	19.35	0.35	0.68	1.93	1.95
	2.90	3.69	5.59	5.61	7.68	7.75	7.42	10.61	10.85	11.26
	11.60	12.30	12.47	12.70	12.98	13.00	14.40	14.84	14.02	14.21
	14.77	15.12	15.28	15.79	16.14	16.72	16.88	16.93	17.57	18.02
	18.60	18.64	0.80	0.84	1.06	1.94	2.80	3.02	3.22	3.39
	4.11	5.05	6.02	6.20	7.06	7.16	8.30	9.05	9.34	9.49
	9.87	9.92	10.25	10.94	11.69	12.12	12.40	12.42	12.62	12.79
	13.46	14.92	15.05	15.27	16.33	16.43	17.03	17.07	17.28	17.82
	18.0	18.1	18.59	18.96						
Amut	2.03	2.18								

RBOSP PROGRESS REPORT

ECI

C-228

LINE-STRIP DATA SHEET

~~MATURE TREE STRATUM~~ Shrub, Tree Seedling Stratum

Project 83

Sheet 1 of 2

Vegetation Type Sagebrush Transect # S-23 Type non-primary

T 25 R 99W S 24 1/4 1/4 S NW SW Transect Length 100m

Aspect (degrees) 325 Slope (degrees) 6 Elevation (feet) 7100

Field Analyst(s) JB + DFK. Date 9/13/75

Site Description Upland Sage Clay. QA Check pm 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	4,5	128	106	130	135	131	normal
2 Chvi	020	4,5	1	7	2	0	1	
3 Teca	031	2	4	9	13	0	0	
4 Opro	037	2	6	2	2	2	2	
5 Gusa	012	4,5	0	18	14	0	0	

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	Trunk Diameter (cm) of Each Tree
Artr	0	0.25	0.35	0.60	1.90	1.95	2.15	2.50	
	3.90	4.10	4.75	4.92	5.25	5.41	5.58	5.87	
	6.50	6.77	8.57	8.67	11.23	11.70	12.87	13.50	
	13.88	14.13	16.31	16.55	19.32	20.00	1.75	2.59	
	2.90	3.57	3.82	4.04	6.68	6.85	7.80	8.61	
	11.28	11.38	12.23	12.67	13.89	14.05	14.20	14.80	
	16.65	16.85	17.10	17.55	19.12	19.40	0.72	1.12	
	1.60	1.82	2.49	2.71	3.96	4.07	4.30	4.82	
	5.42	5.81	5.76	6.05	6.15	6.50	6.86	6.97	
	8.60	9.80	9.12	9.23	9.80	10.28	10.70	10.73	
	10.55	11.30	11.42	12.12	13.05	13.30	13.40	13.52	
	13.68	13.72	14.45	14.78	15.37	16.15	16.30	16.40	
	17.90	18.36	19.35	19.90	0.0	0.2	.40	.50	
/	.57	.74	1.10	1.45	2.03	2.34	2.70	3.51	
Gusa	1.56	1.68							
Chvi	1.10	1.65							
Artr	4.35	4.50	4.83	5.27	5.75	6.50	6.93	7.71	
	8.26	8.42	10.53	10.85	11.45	13.20	14.55	14.65	
Teca	4.80	5.16							
Artr	16.84	17.44	17.82	18.35					
Opro	14.80	15.00	16.18	16.31					

LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

C.2.2.8
Project 83
Sheet 2 of 2

Vegetation Type Sagebrush
Non-Permanent Transect # S-25
Date 9/18/75
RDM

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Syor	3.12	3.21	1.67	1.79	14.41	15.60	16.21	16.32		
Gusa	1.64	1.25	1.90	6.95						
Teca	9.56	9.68	11.52	11.61	11.79	12.01	18.49	18.53	18.85	18.10
	4.05	4.10	6.55	6.72	6.85	6.88	7.61	7.75		
Eula	8.20	8.25								

BROOK PROGRESS REPORT

ECI

Transferred by KCV 9/30/75 from old form

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

C.2.2.8

Project 83

Sheet 1 of 2

Vegetation Type Sagebrush — Non-Permanent Transect # S-25

T 25 R 100W S 22 1/4 1/4 S NW/SW — Transect Length 100m

Aspect (degrees) 80° — Slope (degrees) 10° — Elevation (feet) 8250

Field Analyst(s) KV + DFK — Date 9/17/75

Site Description Upland Sage, alluvial soil — QA Check [illegible] 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	4	165	95	107	83	92	
2 Chvi	020	6	129	114	108	138	126	
3 Amut	032	2	4	—	—	6	13	
4 Chna	019	5	2	2	—	—	—	
5 Syor	033	2	9	7	3	8	11	
6 Rice	042	2	—	5	1	—	—	
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Artr	0.0	1.13	1.30	1.70	2.40	2.91	3.32	3.36	3.72	4.0
	4.22	4.39	4.50	4.71	4.80	5.50	4.64	6.08	6.60	7.05
	7.15	8.40	9.03	9.38	10.60	11.69	11.65	12.18	12.36	12.54
	13.30	13.41	13.52	14.80	15.20	15.25	16.09	16.55	17.25	18.32
	18.70	20.00	0.0	0.27	0.20	0.31	0.52	1.35	1.68	3.36
	3.50	4.21	5.71	5.81	6.72	7.48	8.08	8.43	8.64	8.96
	9.74	9.70	9.79	10.14	12.40	13.19	13.28	13.51	14.23	14.70
	15.10	15.30	15.80	15.98	16.46	16.80	17.08	17.14	17.38	17.58
	18.06	18.55	18.90	20.00	0.00	0.86	1.35	1.50		
Chvi	3.24	3.31	3.48	3.53	3.79	4.05	6.26	6.42	10.32	10.65
	12.35	12.55	14.88	15.00	4.15	4.25	5.18	5.32	5.32	5.65
	7.76	7.82	10.75	10.90	11.66	11.74	12.28	12.30	13.48	13.51
	18.90	18.95	19.51	19.61	0.50	1.00	1.05	1.13	1.20	1.54
	5.45	5.61	9.47	9.65	14.59	14.80	19.80	19.91	3.25	3.5
	4.80	4.85	5.02	5.15	7.13	7.38	12.18	12.52	5.79	5.20
	7.71	7.90	9.25	9.46	10.65	10.73	15.58	15.93	16.34	16.72
	1.80	1.85								

QUADRAT DATA SHEET
HERBACEOUS STRATUM

C.229
Project 83

Sheet 1 of 1

Vegetation Type Shadscale Transect # 553 Type Perm

T 15 R 99W S 25 1/4 1/4 S SWSW Quadrat Size .5m²

Aspect (degrees) 145 Slope (degrees) 37% Elevation (feet) 6650

Field Analyst(s) K. Vories & C. Haynes Date 13-IX-75

Site Description NA QA Check [illegible] 10/1/75

Species	Code #	Phenology Code / HT	Quadrat Number 1 #	1 C	2 #	2 C	3 #	3 C	4 #	4 C	5 #	5 C	6 #	6 C	7 #	7 C	8 #	8 C	9 #	9 C	10 #	10 C
Artemisia frigida	013	3 - 46	2	12			1	2					4	5					3	4	4	3
Chenopodium leptophyllum*	286	8 - 15	7	1			1	1														
Oryzopsis hymenoides	100	7 - 34		1																3		1
Chenopodium fremontii (= leptoph)									5	1	1	t										

C.2.2.8

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 2

Vegetation Type Sagebrush Non-Permanent Transect # S-25

T 7 15 R 99W S 32 1/4 1/4 S SE SW Transect Length 100m

Aspect (degrees) 10 Slope (degrees) 2 Elevation (feet) 7250

Field Analyst(s) J.B. & DFK Date 9/18/75

Site Description transect located towards mixed brush types shallow rocky soil, sparse herb cover QA Check [illegible] 10/7/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Artr	014	5	99	73	31	18	0	normal
2 Anal	034	7	7	14	16	58	39	
3 Teca	031	2	0	0	00	19	33	
4 Chvi	020	6, 2	43	32	12	8	4	
5 Gusa	012	5	5	11	11	7	6	
6 Chna	019	4	1	0	0	0	4	
7 Pied	002		0	0	0	1	0	
8 Syor	033	7	6	9	6	7	11	
9 Juos	001		1	0	0	8	0	
10 Eula	022	6	0	5	18	5	7	
11 Cemo	017	2	0	1	0	0	15	

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Artr	0.0	0.09	2.48	2.80	3.31	4.24	6.43	7.46	9.22	9.41
	10.75	12.24	15.90	16.20	19.39	19.84	0.61	0.71	1.62	2.47
	2.72	4.28	5.56	5.93	9.11	9.22	12.28	12.50	16.67	16.95
	19.68	20.00	0.00	0.83	1.30	1.55	3.20	4.10	4.19	5.08
	7.10	7.29	19.64	19.75	19.90	20.00	0.00	0.07	19.06	19.21
	19.48	19.71								
Cemo	12.90	14.04	17.95	18.91						
Amut	16.42	16.61	7.14	7.27	7.40	7.61	18.25	19.07	19.66	19.87
	0.23	3.51	6.65	6.90	7.26	7.42	9.61	9.79	10.26	10.22
	19.85	20.00	0.00	1.92	2.42	2.83	8.56	10.86	4.74	15.03
	15.23	15.85								
Chvi	2.92	2.97	3.31	4.43	6.98	7.10	14.00	14.32	1.45	1.63
	2.44	2.62	3.14	3.31	4.57	4.66	14.37	14.41	0.61	0.69
	9.64	9.87	12.24	12.54						

RROSP PROJECT

LINE-STRIP DATA SHEET

C.2.2.10

SHRUB, TREE SEEDLING STRATUM

Project 83

Sheet 1 of 2

Vegetation Type Bald

Non-Permanent Transect # ~~18~~ 8-9

T 25 R 100W S 16 1/4 1/4 S NESE Transect Length 100m

Aspect (degrees) 140° Slope (degrees) 5° Elevation (feet) 8670

Field Analyst(s) JTB & D.FK Date 9/15/75

Site Description Rocky clay, grazed QA Check Tumm 9/23/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Arfr	013	5, 6	192	202	336	537	467	normal
2 Gusa	012	5, 6	206	235	243	199	163	
3 Artr	014	5	3	4	0	0	0	
4 Teca	031	2	1	2	0	1	0	
5 Chvi	020	~~3~~ 2	0	0	0	0	2	
6								
7								
8								
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Arfr	8.15	8.24	8.62	8.68	13.75	13.88	15.50	15.56	17.28	17.31
	9.54	6.60	11.03	11.11	9.85	9.94	12.31	12.37	15.48	15.52
	19.08	19.20	19.27	19.27	3.38	3.45	3.75	3.81	12.75	12.86
	15.69	15.81	17.26	17.32	18.041	18.09	18.18	18.21	18.75	18.85
	19.05	19.15	19.60	19.68	0.00	0.05	.75	.84	1.95	1.92
Gusa	2.78	2.89	3.10	3.18	3.56	3.59	7.51	7.66	8.04	8.10
	9.24	9.37	9.60	9.72	14.5	14.27	14.99	15.12	17.56	17.80
	18.65	18.73	19.29	19.40	19.50	19.60	0.36	0.40	0.73	0.81
	1.70	1.76	3.54	3.60	4.75	4.82	8.54	8.61	11.25	11.36
	12.15	12.22	12.50	12.62	13.18	13.23	14.00	14.03	16.00	16.12
	17.45	17.52	18.33	18.39	18.74	18.90	0.10	0.15	3.45	3.57
	7.30	7.47	8.55	8.70	8.41	8.56	8.52	8.58	12.10	12.34
	16.43	16.50	18.58	18.67	19.44	19.53	3.42	3.52		
~~Artr~~	3.47	3.52								

LINE STRIP DATA SHEET
SHRUB, TREE SEEDLING STRATUM

C2210 Project 83

Sheet 2 of 2

Vegetation Type Bald

Non-Permanent Transect # UB-9

Date 9/15/75

cont'd

Species	Intercepts (m) I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Artr	1.57	1.73	3.40	3.44	5.50	5.60	6.12	6.16	11.55	11.60
	12.80	12.72	12.68	12.73	13.00	13.04	13.28	13.50	13.95	14.08
	14.55	14.65	14.88	15.03	16.05	16.12	17.21	17.27	17.49	17.55
	18.00	18.03	18.53	18.56	19.39	19.45	19.49	19.58	0.20	0.30
	1.83	1.87	2.37	2.42	3.04	3.12	3.18	3.24	5.02	5.15
	5.70	5.77	5.83	5.89	5.90	5.97	8.77	8.79	8.95	8.98
	9.33	9.36	10.15	10.20	10.60	10.68	15.08	15.11		
Gusa	1.93	2.08	2.50	2.70	2.89	2.95	4.52	4.66	6.90	6.95
	9.51	9.63	10.74	10.87	18.10	18.28	19.18	19.24	0.83	0.92
	1.43	1.56	2.77	2.81	7.70	7.75	9.73	9.77	10.08	10.11
	11.42	11.54	13.90	14.09	14.30	14.35	14.37	14.42	14.50	14.56
	15.00	15.03	15.32	15.44	19.00	19.13				

ECI

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LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

C.2.2.10

Project 83

Sheet 1 of 1

Vegetation Type Bald Non-Permanent Transect # UB-10

T 25 R 100W S 9 1/4 1/4 S N2 NE Transect Length 100m

Aspect (degrees) 275 Slope (degrees) 15 Elevation (feet) 8500

Field Analyst(s) DFK & JLB Date 9/15/75

Site Description Rocky clay ridge top, grazed QA Check WM 9/23/75

	Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1	Arfr	013	5,6	196	156	308	436	582	normal
2	Feca	031	6,2	1	0	0	3	6	1
3									
4									
5									
6									
7									
8									
9									
10									

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Arfr	1.11	1.20	4.36	4.46	7.78	7.87	8.44	8.47	15.88	15.95
	16.[illegible]	16.[illegible]	16.83	16.99	17.13	17.18	1.23	1.27	1.69	1.72
	5.54	5.56	5.84	5.90	5.97	6.03	7.37	7.40	17.12	17.20
	[illegible]	17.79	0.11	0.17	0.24	0.27	8.49	8.62	8.89	8.97
	9.08	9.15	15.30	15.36	16.37	16.50	17.22	17.29	17.46	17.44
	17.69	17.74	18.05	18.13	18.19	18.20	18.41	18.51	18.65	18.70
	19.01	19.04	2.40	2.45	3.60	3.78	~~4.98~~ 5.01	5.02	12.23	12.27
	13.05	13.08	14.57	14.70	19.82	19.87				

LINE-STRIP DATA SHEET

SHRUB, TREE SEEDLING STRATUM

C2210

Project 83

Sheet 1 of 1

Vegetation Type Bald Non-Permanent Transect # VB-1

T 2S R 100W S 16 1/4 1/4 S NE NE Transect Length 100 M

Aspect (degrees) 240 Slope (degrees) ~1 Elevation (feet) 8550

Field Analyst(s) JB x DFK Date 9/15/75

Site Description Rocky, windswept + gnarled QA Check pm 9/22/75

Species	Code #	Phenology Code	# in each 6 x 20 m quadrat 1	2	3	4	5	Condition
1 Arfr	013	5-6	36	9	1	34	49	normal
2 Chvi	020	5, 6	20	6	2	45	30	
3 Amut	032	7	1	0	0	0	4	
4 Syor	033	7	12	2	0	5	4	
5 Cemo	017	6	0	7	0	6	1	
6 GuSa	012	5	0	12	3	58	139	
7 Mare	009	2	0	6	10	0	26	
8 Teca	031	2	0	0	1	3	17	
9								
10								

Intercepts (m)

Species	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2	I_1	I_2
Arfr	9.23	9.28	10.45	10.51	11.22	12.32	18.31	13.38	18.45	19.03
	0.59	0.28								
Amut	7.45	7.52	8.02	8.09	11.68	12.34				
Teca	7.90	8.03								
Chvi	9.62	9.75	10.86	10.99	11.15	11.21	12.78	12.92		
ACemo	16.91	18.20								
GuSa	16.07	16.26	14.18	19.25	15.92	16.00	16.45	16.59	18.08	18.16
	19.12	18.35	19.99	19.07	19.39	19.49				
Mare	0.18	0.25	0.50	0.91	—					

2.3.2 GRAZING EXCLOSURE

2.3.2.1 Introduction - No changes have been implemented since Progress Report-4. See Section 2.3.2.1 in Progress Report-4 for the objectives of the grazing exclosure study.

2.3.2.2 Methods - No changes have been implemented since Progress Report-4. See Section 2.3.2.2 for specific methods used in grazing exclosure study.

2.3.2.3 Results - In the grass forb stratum, rodent-proof compartments yielded a mean of 0.90 g/sample or 101.93 kg/ha of oven-dried herbage. The deer-cattle proof compartment yielded 4.35 g/sample or 491.10 kg/ha, and the compartment excluding only cattle yielded 3.21 g/sample or 363.04 kg/ha. The "control" or unfenced, area yielded 2.54 g/sample or 286.71 kg/ha.

In the shrub stratum, the 0.01 acre plot within the rodent-proof compartment contained 1.00 m^2 Artemisia tridentata for an absolute area of 249.39 m^2/ha. The deer-proof compartment shrub plot contained a total area of 2.72 m^2 Artemisia tridentata for an absolute area of 680.35 m^2/ha; 0.44 m^2 Chrysothamnus nauseosus for an absolute area of 109.07 m^2/ha; 0.01 m^2 C. viscidiflorus, for an absolute area of 1.95 m^2/ha. The cattle-proof compartment shrub plot contained 0.14 m^2 Amelanchier utahensis, for an absolute area area of 35.82 m^2/ha; 4.03 m^2 Artemisia tridentata, for an absolute area of 1006.66 m^2/ha; 1.04 m^2 Chrysothamnus nauseosus, for an absolute area of 260.72 m^2/ha; 0.32 m^2 Juniperus osteosperma, for an absolute area of 80.52 m^2/ha; 0.05 m^2 Pinus edulis, for an absolute area of 12.27 m^2/ha; and 1.52 m^2 Purshia tridentata for an absolute area of 379.57 m^2/ha. The "control" plot contained 0.10 m^2 Amelanchier utahensis, for an absolute area of 24.05 m^2/ha; 3.82 m^2 Artemisia tridentata for an absolute area of 954.20 m^2/ha; 2.67 m^2 Juniperus osteosperma for an absolute area of 667.85 m^2/ha; 1.08 m^2 Pinus edulis, for an absolute area of 269.57 m^2/ha; and 3.10 m^2 Purshia tridentata, for an absolute area of 773,87 m^2/ha.

In the tree canopy stratum, the periphery of the sampling grid in the rodent-proof compartment intercepted 168.5 cm of juniper (Juniperus osteosperma) and 302.4 cm of pinyon (Pinus edulis) above "high line level" (1.83 m). Juniper and pinyon intercepting the line below "high line level" totalled 77.2 cm and 29.1 cm, respectively. In the deer-proof compartment, the upper canopy of the grid perimeter was intercepted by 89.8 cm pinyon. The lower canopy consisted of 152.8 cm pinyon and 78.4 cm juniper. The perimeter of the cattle-proof compartment grid intercepted 156.7 cm of pinyon and 170.1 cm juniper in the upper canopy, 224.4 cm pinyon and 135.8 cm pinyon in the lower canopy. Along the perimeter of the grid in the control area, 156.3 cm pinyon and 22.1 cm juniper were intercepted in the upper canopy, and 102.8 cm pinyon and 59.1 cm juniper in the lower canopy.

Shrub photoplot photos are on file as baseline data for comparison with results from future sampling periods.

2.3.2.4 Summary

And Conclusions - The data contained in this section are baseline material intended for comparison with data from future years. It is important to recognize that initial differences between sample grids may exercise considerable influences on the responses elicited from the various treatments. Current differences can be attributed to slight variations in slope and aspect within and between the sample plots. It should be understood that these influences will exert differential pressures on the responses of each sample site and that these responses will not necessarily be directly proportionate to the degree of protection from grazing and browsing. The responses of sample sites to degrees of release from grazing pressures will be measured in future years with the aforementioned considerations in mind.

RAW DATA
FOR
GRAZING EXCLOSURES

OCULAR ESTIMATE - CLIPPED PLOTS FOR GRASS-FORBS

Project 73 Site A Date 10 Aug 75

Observer [illegible] Page 1 of 1

	Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight
1	0.0	N/A	26	0.0	N/A	51			76		
2	2.5	2.5	27	0.0	N/A	52			77		
3	1.5	N/A	28	0.0	N/A	53			78		
4	0.0	N/A	29	0.0	N/A	54			79		
5	0.5	N/A	30	3.0	1.5	55			80		
6	2.0	N/A	31	6.5	N/A	56			81		
7	0.0	N/A	32	0.0	N/A	57			82		
8	0.0	N/A	33	0.5	0.5	58			83		
9	0.5	0.5	34	2.0	N/A	59			84		
10	0.0	N/A	35	1.5	N/A	60			85		
11	0.5	N/A	36	0	N/A	61			86		
12	0.5	N/A	37	3.0	N/A	62			87		
13	0.5	0.5	38	0.0	N/A	63			88		
14	0.5	N/A	39	2.0	N/A	64			89		
15	0.0	N/A	40	0.0	N/A	65			90		
16	3.0	4.5	41	0.0	N/A	66			91		
17	4.0	N/A	42	1.0	1.0	67			92		
18	2.5	N/A	43	0.0	N/A	68			93		
19	0.0	N/A	44	4.0	3.0	69			94		
20	0.0	N/A	45	0.0	N/A	70			95		
21	0.0	N/A	46	0.0	N/A	71			96		
22	0.5	N/A	47	8.0	9.5	72			97		
23	4.0	3.0	48	0.0	N/A	73			98		
24	1.5	N/A	49	0.0	N/A	74			99		
25	0.0	N/A	50	1.0	N/A	75			100		

OCULAR ESTIMATE - CLIPPED PLOTS FOR GRASS-FORBS

Project 93 Site B Date 19 Aug 93

Observer [illegible] Page 1 of 1

	Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight
1	0.0	[illegible]	26	14.5	12.5	51	37.0	N/A	76	5.0	N/A
2	0.0	N/A	27	9.5	N/A	52	2.5	3.0	77	9.0	N/A
3	31.0	N/A	28	2.5	3.0	53	1.0	N/A	78	4.0	6.0
4	1.5	N/A	29	7.0	N/A	54	1.0	N/A	79	0.0	N/A
5	0.0	N/A	30	13.0	N/A	55	7.0	N/A	80	9.0	N/A
6	5.5	11.5	31	3.0	N/A	56	0.0	N/A	81	5.0	N/A
7	0.5	N/A	32	7.0	N/A	57	0.0	N/A	82	0.0	N/A
8	0.0	N/A	33	0.5	N/A	58	0.0	N/A	83	3.0	N/A
9	0.0	N/A	34	0.0	N/A	59	0.0	N/A	84	6.0	4.5
10	0.0	N/A	35	6.0	6.0	60	13.0	17.5	85	3.0	N/A
11	7.5	6.0	36	2.0	N/A	61	1.0	N/A	86	3.0	N/A
12	9.5	6.0	37	1.0	N/A	62	2.5	2.0	87	1.0	N/A
13	0.5	N/A	38	0.0	N/A	63	1.0	N/A	88	8.5	9.5
14	18.0	N/A	39	3.0	3.5	64	3.0	N/A	89	5.0	N/A
15	4.5	N/A	40	7.0	N/A	65	3.0	N/A	90	3.0	N/A
16	0.5	N/A	41	0.0	N/A	66	7.0	8.5	91	5.0	N/A
17	1.5	N/A	42	0.0	N/A	67	3.0	N/A	92	12.0	N/A
18	2.0	N/A	43	3.0	N/A	68	5.0	N/A	93	0.0	N/A
19	10.5	12.0	44	0.0	N/A	69	0.0	N/A	94	2.0	N/A
20	12.0	N/A	45	0.0	N/A	70	2.0	N/A	95	1.0	1.5
21	12.0	N/A	46	11.0	8.0	71	0.0	N/A	96	3.0	N/A
22	9.0	N/A	47	1.5	N/A	72	4.5	N/A	97	1.0	1.5
23	1.0	N/A	48	2.0	N/A	73	3.5	3.5	98	0.0	N/A
24	T	N/A	49	9.0	14.0	74	0.0	N/A	99	22.0	N/A
25	0.0	[illegible]	50	0.0	N/A	75	3.0	N/A	100	12.0	N/A

[illegible]

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-1cot 1 of 2

OCULAR ESTIMATE - CLIPPED PLOTS FOR GRASS-FORBS

83C812.1

Project 83 Site I-C Date 20 Aug 75

Observer Hochlert Baker Page 1 of 2

NDP 11-175

	Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight
1	0.0	N/A	26	0.0	N/A	51	0.0	N/A	76	5.0	N/A
2	2.0	N/A	27	0.0	N/A	52	2.5	~~1.5~~	77	6.0	5.5
3	0.0	N/A	28	0.0	N/A	53	0.0	N/A	78	0.0	N/A
4	5.0	N/A	29	0.0	N/A	54	0.0	N/A	79	1.0	N/A
5	3.0	3.0	30	13.0	11.0	55	12.5	N/A	80	4.0	N/A
6	0.0	N/A	31	0.0	N/A	56	0.0	N/A	81	9.0	N/A
7	18.0	N/A	32	0.0	N/A	57	31.0	N/A	82	8.0	N/A
8	4.0	N/A	33	0.0	N/A	58	24.0	21.5	83	0.0	N/A
9	14.0	N/A	34	7.0	N/A	59	3.5	N/A	84	9.0	9.5
10	0.0	N/A	35	0.5	0.5	60	0.0	N/A	85	1.0	N/A
11	0.0	N/A	36	0.0	N/A	61	4.0	3.0	86	0.0	N/A
12	2.0	1.5	37	0.0	N/A	62	0.0	N/A	87	2.0	1.0
13	0.0	N/A	38	0.0	N/A	63	~~1.0~~	N/A	88	0.0	N/A
14	0.0	N/A	39	1.0	1.0	64	0.0	N/A	89	0.0	N/A
15	9.0	11.0	40	0.0	N/A	65	12.0	10.0	90	0.0	N/A
16	0.0	N/A	41	28.0	N/A	66	0.0	N/A	91	0.5	N/A
17	12.0	N/A	42	1.0	N/A	67	0.0	N/A	92	1.0	N/A
18	16.0	N/A	43	0.0	N/A	68	0.0	N/A	93	0.0	N/A
19	0.0	N/A	44	1.5	10.0	69	0.0	N/A	94	6.0	12.0
20	8.0	7.0	45	4.0	N/A	70	3.0	N/A	95	0.0	N/A
21	9.0	N/A	46	0.0	N/A	71	27.0	N/A	96	0.0	N/A
22	1.0	N/A	47	8.0	N/A	72	5.0	6.5	97	7.0	7.0
23	10.0	N/A	48	1.0	N/A	73	0.5	N/A	98	0.0	N/A
24	7.0	4.5	49	4.0	5.0	74	2.5	N/A	99	0.0	N/A
25	3.0	N/A	50	2.0	N/A	75	0.0	N/A	100	18.0	N/A

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OCULAR ESTIMATE - CLIPPED PLOTS FOR GRASS-FORBS

Project 83 RBCSP Site T-C Date 20 Aug 75

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	Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight
1	3.0	N/A	26	0.5	N/A	51			76		
2	5.0	4.5	27	23.0	17.0	52			77		
3	0.5	N/A	28	0.0	N/A	53			78		
4	4.0	N/A	29	4.5	N/A	54			79		
5	12.0	N/A	30	6.0	N/A	55			80		
6	0.0	N/A	31	2.0	N/A	56			81		
7	5.0	N/A	32	0.0	N/A	57			82		
8	2.5	N/A	33	0.0	N/A	58			83		
9	18.0	14.5	34	3.0	3.0	59			84		
10	0.0	N/A	35	3.0	N/A	60			85		
11	11.0	N/A	36	7.0	N/A	61			86		
12	0.0	N/A	37	0.0	N/A	62			87		
13	13.0	13.5	38	6.0	N/A	63			88		
14	0.0	N/A	39	0.0	N/A	64			89		
15	0.0	N/A	40	0.0	N/A	65			90		
16	0.5	0.5	41	1.5	1.0	66			91		
17	21.0	N/A	42	2.5	2.5	67			92		
18	0.0	N/A	43	1.0	N/A	68			93		
19	0.0	N/A	44	0.0	N/A	69			94		
20	0.0	N/A	45	2.0	N/A	70			95		
21	0.0	N/A	46	2.0	1.0	71			96		
22	7.0	N/A	47	0.0	N/A	72			97		
23	2.0	2.0	48	0.0	N/A	73			98		
24	0.0	N/A	49	0.0	N/A	74			99		
25	4.0	N/A	50	0.0	N/A	75			100		

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OCULAR ESTIMATE - CLIPPED PLOTS FOR GRASS-FORBS

Project 52 Site I-D Date 31 Aug 75

Observer [illegible] Page 1 of 2

from 4, 145

Ocular Estimate	Clipped Weight	Ocular Estimate	Clipped Weight	Ocular Estimate	Clipped Weight	Ocular Estimate	Clipped Weight
1	[illegible]	26	[illegible]	51	[illegible]	76	[illegible]
2	[illegible]	27	[illegible]	52	[illegible]	77	[illegible]
3	[illegible]	28	[illegible]	53	[illegible]	78	[illegible]
4	[illegible]	29	[illegible]	54	[illegible]	79	[illegible]
5	[illegible]	30	[illegible]	55	[illegible]	80	[illegible]
6	[illegible]	31	[illegible]	56	[illegible]	81	[illegible]
7	[illegible]	32	[illegible]	57	[illegible]	82	[illegible]
8	[illegible]	33	[illegible]	58	[illegible]	83	[illegible]
9	[illegible]	34	[illegible]	59	[illegible]	84	[illegible]
10	[illegible]	35	[illegible]	60	[illegible]	85	[illegible]
11	[illegible]	36	[illegible]	61	[illegible]	86	[illegible]
12	[illegible]	37	[illegible]	62	[illegible]	87	[illegible]
13	[illegible]	38	[illegible]	63	[illegible]	88	[illegible]
14	[illegible]	39	[illegible]	64	[illegible]	89	[illegible]
15	[illegible]	40	[illegible]	65	[illegible]	90	[illegible]
16	[illegible]	41	[illegible]	66	[illegible]	91	[illegible]
17	[illegible]	42	[illegible]	67	[illegible]	92	[illegible]
18	[illegible]	43	[illegible]	68	[illegible]	93	[illegible]
19	[illegible]	44	[illegible]	69	[illegible]	94	[illegible]
20	[illegible]	45	[illegible]	70	[illegible]	95	[illegible]
21	[illegible]	46	[illegible]	71	[illegible]	96	[illegible]
22	[illegible]	47	[illegible]	72	[illegible]	97	[illegible]
23	[illegible]	48	[illegible]	73	[illegible]	98	[illegible]
24	[illegible]	49	[illegible]	74	[illegible]	99	[illegible]
25	[illegible]	50	[illegible]	75	[illegible]	100	[illegible]

plot 15 was empty so an extra plot (1-x) was clipped & estimated for calibration purposes

[illegible]

OCULAR ESTIMATE - CLIPPED PLOTS FOR GRASS-FORBS

Project _____ Site _____ Date _____

Observer _____ Page _____ of _____

	Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight		Ocular Estimate	Clipped Weight
101			126			51			76		
102			127			52			77		
103			128			53			78		
104			129			54			79		
105			130			55			80		
106			131			56			81		
107			132			57			82		
108			133			58			83		
109			134			59			84		
110			135			60			85		
111			136			61			86		
112			137			62			87		
113			138			63			88		
114			139			64			89		
115			140			65			90		
116			141			66			91		
117			142			67			92		
118			143			68			93		
119			144			69			94		
120			145			70			95		
121			146			71			96		
122			147			72			97		
123			148			73			98		
124			149			74			99		
125			150			75			100		

MINOR PROGRESS REPORT

2.3.3 SMALL MAMMALS

2.3.3.1 Introduction - No changes have been implemented since Progress Report-2. See section 3.5.1 in Progress Report-2 for the objectives of the small mammal studies.

2.3.3.2 Methods - Several methods have been used and are being employed to determine the identity of small mammals that occur within Tract C-a and environs, their densities, seasonal periodicity of activity, reproductive efforts and trophic relationships. Procedures of methodology have been described in Progress Report-1, and modifications in Progress Reports-2, -3 and -4. See section 2.3.3.2.1 and 2.3.3.2.6 in Progress Report-3 for methods of the live trapping and pitfall program, respectively. For methods of collecting voucher specimens see section 3.5.2.5 in Progress Report-2. In Progress Report-4, see section 2.3.3.2.2 for methods of collecting animals for laboratory analysis; section 2.3.3.2.3 and 2.3.3.2.4 for methods of laboratory analysis of reproductive effort and stomach analysis, respectively; section 2.3.3.2.7 for night spotlight censusing methods.

2.3.3.3 Results

2.3.3.3.1 Live and Removal Trapping - Fourteen different vegetation types were sampled by small mammal live trapping grids during October and December, 1974 and during May, July and September-October, 1975. Small mammal grid designations and habitat descriptions for each grid are listed in Table 2.3-40. Removal trap lines were established in vegetation types sampled by grids A-E and G during December, 1974 and May, July and October, 1975 to collect adult deer mice (Peromyscus maniculatus), least chipmunks (Eutamias minimus) and long-tailed voles (Microtus longicaudus) for analysis of reproductive efforts and stomach contents.

Approximately 2,700 small mammals representing 13 different trappable species have been captured to date. The species encountered are included in the wild mammal species list presented in Table 2.3-41 .

Data collection from small mammals captured during trapping operations are summarized and presented below. Three major topics are considered. First, the relative importance of each habitat type to the diversity and abundance of small mammal population is discussed. Secondly, the ecological distribution, abundance, and variation of population parameters among habitats is described for each small mammal species captured. Finally, seasonal variations in small mammal population levels are discussed.

2.3.3.3.1.1 Small Mammal Habitats - Determination of the relative importance of different habitats to small mammal populations will focus on a comparison of three esitmated parameters: species diversity, species composition and abundance.

Shannon-Weiner diversity indices are provided for each grid (habitat type) during each sampling period in Tables 2.3-42 to 2.3-47 . The diversity indices express numerically the number of species and distribution of individuals among species (equitability) for each grid. Since an increased trapping effort usually results in the capture of more species and more individuals among species, direct comparison of results cannot be made between small (0.81 ha) and larger (1.35 and 7.29 ha) grids.

A summary of trapping results, expressed as individuals of all species captured per 100 trap nights, is presented for all grids during each sampling period in Table 2.3-48. Expressing abundance as captures per 100 trap nights where one trap night is defined as a trap baited and set for approximately 24 hours permits direct comparison of results of each grid type and between sampling periods.

A trapping summary by species for all grids is shown in Table 2.3-49 . Macrohabitat affinities as determined by chi-square values are presented for each species in Table 2.3-50 . A total chi-square value greater than 22.36 represent

Table 2.3-47 Number of species captured (n) and Shannon Weiner indices (H') for each grid by trapping period (October 1974 - September/October 1975).

Grid	Vegetation Type	Oct. 1974 n	Oct. 1974 H'	Dec. 1974 n	Dec. 1974 H'	May 1975 n	May 1975 H'	July 1975 n	July 1975 H'	Sept/Oct. 1975 n	Sept/Oct. 1975 H'
1	Bottomland meadow	2	.349	3	.908	2	.500	2	.500	1	(0
2	Sagebrush (flat)	2	.687	1	(0	3	.967	4	1.047	3	.718
3	Rabbitbrush	3	.745	2	.440	3	.894	3	0.619	3	.455
4	Pinyon-juniper/mixed brush	3	.980	1	(0	4	1.001	3	1.038	4	.971
5	Mixed brush	2	.665	2	.693	2	.642	2	.683	2	.655
6	Pinyon-juniper/sagebrush	3	.673	1	(0	3	.935	4	1.133	2	.295
7	Upland meadwo	2	.349	0	--*	2	.500	2	.520	1	(0
A	Greasewood/sagebursh	3	.950	3	.773	3	.849	4	1.040	5	.970
B	Pinyon-juniper (south slope)	5	1.182	2	.393	6	1.440	7	1.634	7	1.296
C	Pinyon-juniper (north slope)	7	1.231	2	.693	5	1.331	6	1.477	6	1.314
D	Sagebrush	5	.981	1	(0	4	.998	4	1.165	4	.721
E	Mixed brush	4	.857	0	--*	5	1.046	5	1.137	5	.764
F	Douglas-fir	2	.398	2	.271	2	.645	2	.693	4	1.147
G	Aspen		1.028			3	.810	3	.613	4	1.245

* Insufficient data for computation

Table 2.3-43 Small mammal trapping summary for all grids during each sampling period for RBOSP

Grid	Vegetation Type	Individuals captured of all species per 100 trap nights						
		Oct. 1974	Dec. 1974	May 1975	July 1975	Oct. 1975	Average	% Relative Abundance
1	Bottomland Meadow	10.91	14.55	5.67	5.05	3.64	8.43	4.65
2	Sagebrush	10.91	4.85	18.33	20.61	17.58	13.45	7.42
3	Rabbitbrush	23.64	15.15	35.76	12.73	23.03	22.06	12.17
4	Pinyon-juniper/mixed brush	24.24	2.42	22.42	13.33	12.73	15.03	8.29
5	Mixed Brush	20.61	1.21	23.03	8.48	33.33	17.33	9.56
6	Pinyon-juniper/sagebrush	18.18	6.06	21.21	15.15	13.94	14.91	8.22
7	Upland Meadow	5.45	0.00	9.09	3.48	9.70	6.55	3.61
A	Grasswood/Sagebrush	22.26	12.73	12.33	12.63	26.47	16.09	8.88
B	Pinyon-juniper (south slope)	16.54	9.09	14.14	16.09	14.44	14.94	8.24
C	Pinyon-juniper (north slope)	15.04	1.21	9.02	14.59	11.28	11.82	6.52
D	Sagebrush	15.34	1.21	9.77	7.97	6.47	9.36	5.17
E	Mixed Brush	8.57	0.00	13.08	11.13	17.44	11.82	6.52
F	Douglas Fir	8.98	7.88	5.52	7.21	3.85	8.30	4.58
G	Aspen	*	*	10.49	6.56	10.49	9.18	5.06
	Average	13.39	5.87	12.71**	11.37**	14.52**	13.07	
	% Relative Abundance	25.70	9.81	27.23	18.99	24.26		

* Grid not sampled.

** For comparative purposes, Aspen data are not included in averages.

Table 2.3-49 Small mammal trapping summary by species for all grids during sampling periods 1, 3, 4, and 5* for RBOSP

Grid	Vegetation Type	Number of individuals captured of each species** per 100 trap nights												
		SOME	SPLA	SPTR	PEAP	EUMI	EUOU	PEMA	PETR	NECI	CLGA	MIMO	MILO	LACU
1	Bottomland Meadow	0.00	0.00	0.00	0.00	0.34	0.00	5.56	0.00	0.00	0.00	0.51	0.00	0.34
2	Sagebrush	0.00	0.00	1.82	0.15	9.70	0.00	3.94	0.00	0.00	0.00	0.00	0.00	0.00
3	Rabbitbrush	0.00	0.91	0.00	0.00	8.94	0.00	13.64	0.00	0.00	0.00	0.00	0.30	0.00
4	Pinyon-juniper/ mixed brush	0.00	0.91	0.00	0.15	7.58	1.67	7.88	0.00	0.00	0.00	0.00	0.00	0.00
5	Mixed brush	0.00	0.00	0.00	0.00	13.18	0.00	8.18	0.00	0.00	0.00	0.00	0.00	0.00
6	Pinyon-juniper/ sagebrush	0.00	0.91	0.00	0.45	4.70	0.00	11.06	0.00	0.00	0.00	0.00	0.00	0.00
7	Upland meadow	0.00	0.00	0.00	0.00	1.06	0.00	7.12	0.00	0.00	0.00	0.00	0.00	0.00
A	Greasewood-Sagebrush	0.00	0.68	0.00	0.08	8.53	0.00	8.16	0.00	0.00	0.00	0.00	0.98	0.00
B	Pinyon-juniper (south slope)	0.00	1.20	0.00	0.19	6.39	1.43	4.59	0.64	0.83	0.00	0.04	0.00	0.00
C	Pinyon-juniper (north slope)	0.00	1.58	0.00	0.00	4.17	1.39	4.70	0.38	0.23	0.00	0.04	0.00	0.00
D	Sagebrush	0.04	0.90	0.00	0.00	4.02	0.00	4.51	0.00	0.11	0.00	0.00	0.00	0.30
E	Mixed brush	0.00	0.53	0.00	0.00	5.64	0.00	5.68	0.00	0.00	0.08	0.00	0.19	0.45
F	Douglas Fir	0.00	0.00	0.00	0.00	2.41	0.00	1.38	0.00	0.00	4.48	0.00	0.09	0.00
G	Aspen	0.00	0.00	0.00	0.00	2.51	0.00	1.42	0.00	0.00	4.92	0.00	0.33	0.00
	Average	0.01	0.74	0.06	0.06	5.60	0.43	5.72	0.14	0.16	0.50	0.03	0.19	0.11
	% Relative Abundance	0.04	5.41	0.44	0.44	40.80	3.14	41.65	0.99	1.13	3.62	0.18	1.35	0.80

* Winter sampling period deleted from analysis due to the inactivity of most small mammal species during this time.

** See Table 2.3-41 for species represented by each 4-letter code.

Table 2.3-50 Determination of macrohabitat preferences by chi-square values* for all species captured on each grid during sampling periods 1, 3, 4, and 5** for RBOSP

Grid	Vegetation Type	Species***										
		SPLA	SPTR	PEAP	EUMI	EUQU	PEMA	PETR	NECI	CLGA	MILO	LACU
1	Bottomland Meadow	4.41-	0.36-	0.36-	29.38-	2.56-	0.03-	0.80-	0.92-	2.95-	1.10-	2.76+
2	Sagebrush	4.90-	338.74+	0.91+	19.78+	2.85-	3.64-	0.89-	1.03-	3.28-	1.23-	0.73-
3	Rabbitbrush	0.25+	0.40-	0.40-	13.14+	2.85-	72.46+	0.89-	1.03-	3.28-	0.49+	0.73-
4	Pinyon-juniper/mixed brush	0.25+	0.40-	0.91-	4.60+	23.33+	5.41+	0.89-	1.03-	3.28-	1.23-	0.73-
5	Mixed brush	4.90-	0.40-	0.40-	67.75+	2.85-	7.03+	0.89-	1.03-	3.28-	1.23-	0.73-
6	Pinyon-juniper/sagebrush	0.25+	0.40-	17.04+	0.96-	2.85-	33.00+	0.89-	1.03-	3.28-	1.23-	0.73-
7	Upland meadow	4.90-	0.40-	0.40-	24.28-	2.85-	2.38+	0.89-	10.3-	3.28-	1.23-	0.73-
A	Greasewood-sagebrush	0.16-	1.60-	0.10+	40.89+	11.48-	27.77+	3.60-	4.14-	13.21-	89.82+	2.94-
B	Pinyon-juniper (south slope)	7.59+	1.60-	7.21+	2.97+	61.28+	5.93-	49.80+	77.11+	13.21-	4.94-	2.94-
C	Pinyon-juniper (north slope)	25.05+	1.60-	1.60-	9.67-	56.74+	4.80-	11.35+	0.84+	13.21-	4.94-	2.94-
D	Sagebrush	0.91+	1.60-	1.60-	11.82-	11.48-	6.75-	3.60-	0.31-	13.21-	4.94-	8.73+
E	Mixed Brush	1.68-	1.60-	1.60-	0.01+	11.48-	0.01-	3.60-	4.14-	9.52-	0.00+	27.99+
F	Douglas-fir	8.61-	0.70-	0.70-	21.03-	5.01-	38.16-	1.57-	1.80-	371.01+	0.62-	1.28-
G	Aspen	6.80-	0.55-	0.55-	15.56-	3.95-	29.53-	1.24-	1.42-	360.05+	1.00+	1.00-
	TOTAL	70.65	350.35	33.79	261.86	201.55	236.78	80.94	96.85	816.05	113.97	54.91

* A total chi-square value greater than 22.36 indicates a significant difference between expected and observed number of captures at the 95% confidence level. A '+' following a value signifies that the observed number of captures exceeded the expected number while a '-' implies the opposite.

** Winter sampling period deleted from analysis due to inactivity of most small mammal species during this time.

*** See Table 2.3-41 for species represented by each 4-letter code.

a statistically significant difference between the observed and expected (based on a random distribution of species among habitat types) number of captures. Habitat affinities are indicated by the largest positive values of a species individual chi-square value series.

Most small mammals ultimately depend upon the vegetation for their cover, source of food and frequently their only supply of water. The amount of vegetation cover within a habitat type therefore is probably a major determining factor in the distribution and abundance of many small mammal species. To help identify causal relationships between vegetation and small mammal population parameters, percent cover of all vegetation within the tree, shrub, and herbaceous strata at each small mammal grid are presented in Table 2.3-51. Percent cover was determined from data collected on permanent vegetation phytosociological transects established on or near the appropriate small mammal grid.

2.3.3.3.1.1.1 Bottomland Meadow (Grid 1) - Species diversity on grid 1 was comparatively low during most sampling periods with no more than three species represented in any one sample. The deer mouse was the most frequently trapped small mammal on the grid. The least chipmunk, montane vole, and the sagebrush vole (Lagurus curtatus) were also captured.

Percent relative abundance of trappable small mammals, based on the average trapping success per unit effort (i.e., 100 trap nights) over all sampling periods, was the third lowest (4.65%) among grids. This is probably due in large part to the total absence of tree cover, and very little shrub cover (0.27%) on the grid although herbaceous cover (67.93%) was the highest of all grids. As the results from other grids will emphasize the amount of tree and shrub cover, particularly shrub cover, is an important factor which influences total small mammal abundance. A dense shrub cover definitely affords a great deal of protection, many potential nesting sites and a source of food.

Table 2.3-51 Percent cover of tree, shrub and herbaceous vegetation on or near each small mammal live trapping grid as determined from data collected on permanent phytosociological transects for RBOSP

Grid	Vegetation Type	% Cover-all vegetation species			
		Tree	Shrub	Herbaceous*	Total
1	Bottomland meadow**	--	0.27	67.93	65.20
2	Sagebrush**	--	21.43	7.32	28.75
3	Rabbitbrush***	--	35.53	22.95	58.48
4	Pinyon-juniper/mixed brush**	1.75	24.30	10.45	36.50
5	Mixed brush**	--	51.31	8.52	59.83
6	Pinyon-juniper/sagebrush**	--	25.75	25.85	51.60
7	Upland meadow**	--	--	20.88	20.88
A	Greasewood-sagebrush***	--	39.88	9.43	49.31
B	Pinyon-juniper (south slope)***	13.05	1.37	3.57	17.99
C	Pinyon-juniper (north slope)**	28.50	1.00	1.77	31.27
D	Sagebrush***	--	32.97	13.43	46.40
E	Mixed brush**	--	74.36	5.82	80.18
F	Douglas Fir***	30.45	57.01	20.67	108.13
G	Aspen***	34.92	59.43	26.23	120.58

* Average of 3 sampling periods (May , July, and September, 1975).

** Vegetation transect is within a comparable vegetation type near the small mammal grid.

*** All or a portion of the vegetation transect is within the small mammal grid.

2.3.3.3.1.1.2 Sagebrush (Grid 2) - Species diversity was on the average higher on this grid located on 84 Mesa than that of bottomland meadow with as many as 4 species captured in one sample. The least chipmunk and the deer mouse were captured more frequently than other species and the former species exhibited an affinity for this sagebrush type. The apache pocket mouse (Perognathus apache), and the thirteen-lined ground squirrel (Spermophilus tridecemlineatus) were also represented in samples. The latter species exhibited a very definite affinity for this habitat type.

Although herbaceous vegetation cover was relatively low (7.32%), shrub cover (21.43%) was much higher than that for bottomland meadow. Accordingly, total percent relative abundance (7.42%) was higher.

2.3.3.3.1.1.3 Rabbitbrush (Grid 3) - Species diversity was very low on this grid as most of the individuals captured were either deer mice or least chipmunks. Both species exhibited an affinity for this type. The golden-mantled ground squirrel (Spermophilus tridecemlineatus) and the long-tailed vole were also captured on the grid but were represented infrequently in samples.

Total percent relative abundance (12.17%) was the highest of any grids sampled. The high shrub (35.53%) and herbaceous (22.95%) cover were probably major contributing factors to the high capture success in this habitat type. In fact, only two other grids, grid A (greasewood-sagebrush) and grid 5 (mixed brush), both in comparable elevational zones and with a higher shrub cover and similar relative abundances, exhibited a much lower herbaceous cover, 8.52 and 9.43, respectively.

2.3.3.3.1.1.4 Pinyon-juniper (mixed brush) - The ecotonal (edge habitat) characteristics and the presence of trees are probably two important factors which resulted in a moderately high average species diversity value for this grid.

The Colorado chipmunk (Eutamias quadrivittatus), whose distribution is limited to the pinyon-juniper type within the study area was caught here. Although its relative abundance was low compared to the least chipmunk and the deer mouse, the Colorado chipmunk revealed an affinity for this habitat type as did the latter two species. The golden-mantled ground squirrel and the apache pocket mouse were occasionally captured.

The total percent relative abundance (8.29%) was the fourth highest of all grids. The moderately high shrub cover (24.30%), herbaceous cover (10.45%) and the presence of a tree stratum probably accounted for the high relative abundance.

2.3.3.3.1.1.5 Mixed Brush (Grid 5) - Species diversity was relatively low on this grid during all sampling periods as only two species were ever captured. Both the deer mouse and the least chipmunk were trapped frequently in traps and both exhibited a definite affinity for the habitat type.

This grid exhibited the highest shrub cover (51.31%) of all grids established at lower elevations. Accordingly, total percent relative abundance (9.56%) was the third highest of all grids. It appears from the comparison of trapping results from homogeneous mixed brush and sagebrush types (grids 5,2, and D) at the lower elevation that mixed brush can support more small mammals than sagebrush. Thus, in some instances, vegetation species composition may be as important to small mammal diversity and abundance as vegetation cover.

2.3.3.3.1.1.6 Pinyon-juniper/sagebrush (Grid 6) - Although this grid is similar to grid 4 (pinyon-juniper/mixed brush) in that it is a pinyon-juniper/shrub ecotone, species diversity was on the average lower. The largest contributing factor to the decreased diversity was the predominance of deer mice and the total absence of the Colorado chipmunk. The deer mice as well as the apache pocket mouse showed an affinity forthis habitat type. The golden mantled ground squirrel was captured occasionally on the grid.

Although both shrub cover (25.27%) and herbaceous cover (25.85%) were higher on this grid than on grid 4, total relative abundance was lower (8.22%).

2.3.3.3.1.1.7 Upland Meadow (Grid 7) - Species diversity here was, on the average, the lowest of all small grids. Only 2 species, the least chipmunk and the deer mouse, were represented in samples and neither exhibited a preference for the type.

Total percent relative abundance (3.61%) was the lowest of all grids. The absence of trees and shrubs and the harsh environmental conditions characteristic of the higher elevations were undoubtedly the major contributing factor in the poor trapping success shown by this grid.

2.3.3.3.1.1.8 Greasewood-sagebrush (Grid A) - This grid exhibited the lowest average species diversity of the larger grids established in habitats below 7500 ft elevation. Although five species were trapped, most individuals captured were either deer mice or least chipmunks. Both species exhibited a preference for this habitat type as did the long-tailed vole (Microtus longicaudus). The golden-mantled ground squirrel and the Apache pocket mouse were captured infrequently.

Total percent relative abundance (9.98%) was the highest of the larger grids and second highest of all grids. Again, high shrub cover (39.88%) appears to be a major contributing factor even though herbaceous cover (9.43%) was low.

2.3.3.3.1.1.9 Pinyon-juniper/south slope (Grid B) - This grid exhibited the highest species diversity of any of the large (7.29 ha) grids. A total of 8 species were trapped on this grid. Five of these species, the golden mantled ground squirrel, Apache pocket mouse, bushy-tailed wood rat (Neotoma cinerea), Colorado chipmunk and pinyon mouse (Peromyscus truei) exhibited an affinity for the habitat type. The latter two species are limited to pinyon-juniper woodlands within the study area. The least chipmunk, montane vole and the deer mouse were also captured.

Though shrub cover (1.37%) and herbaceous cover (3.57%) were low, total percent relative abundance (8.24%) was moderately high on this grid. The presence of trees evidently was important to small mammal abundance here.

2.3.3.3.1.1.10 Pinyon-juniper/north slope (Grid C) - Again, largely due to the presence of the tree stratum, average species diversity was high on this grid. With the absence of the apache pocket mouse, the same species were captured on this grid as on grid B. However, only 3 species, the golden-mantled ground squirrel, Colorado chipmunk, and the pinyon mouse showed a definite affinity for this habitat type.

Tree cover (28.50%) was higher on this grid than on grid B thought total small mammal percent relative abundance (6.52%) was lower. This may be attributed in part to the lower shurb (1.00%) and herbaceous (1.77%) cover.

2.3.3.3.1.1.11 Sagebrush (Grid D) - Average species diversity on this grid was comparable to that of grid A (greasewood-sagebrush). Six species were represented in samples with the deer mouse and least chipmunk being captured more frequently even though both showed a negative affinity for the sagebrush type. The sagebrush vole revealed an affinity for this type. The golden mantled ground squirrel and the bushy-tailed wood rat were also captured.

Total relative abundance (5.17%) was the lowest of the large grids. The high shrub cover (32.97%) and the moderately high herbaceous cover (13.43%) does not support this trend. However, the absence of trees and the fact that homogeneous sagebrush types (excluding sagebrush stands in the bottomland drainings) tend to support fewer small mammals than mixed bursh types may partially explain the lower relative abundance on this grid.

2.3.3.3.1.1.12 Mixed Brush (Grid E) - Average diversity on this grid was comparable to the other treeless large grids, although this elevation is over 1,000 ft higher. Six species were captured with the deer mouse and the least chipmunk again most abundant. However, the only species that showed an affinity for this mixed brush type was the sagebrush vole. The red-backed vole (Clethrionomys gapperi) was represented by very few captures. The golden-mantled ground squirrel and the long-tailed vole were also captured.

Snrub density (74.36%) was the highest of any grid and thus total percent relative abundance was higher than grid D (sagebrush) even though the elevation was higher and the environmental conditions probably harsher.

2.3.3.3.1.1.13 Douglas-Fir (Grid F) - Average species diversity was low on this grid as most of the captures were of one species, the red-backed vole, which revealed a definite affinity for the Douglas fir vegetation type. The long-tailed vole, deer mouse and the least chipmunk were occasionally captured.

Even though tree (30.45%), shrub (57.01%), and herbaceous (20.67%) cover were very high, total percent relative abundance was the second lowest of any grid. The harsher environment and shorter growing season at the higher elevation (8200 ft) are probably major contributing factors.

2.3.3.3.1.1.14 Aspen (Grid F) - Although the same species were captured in Aspen as in Douglas-fir, the individuals captured were more equally distributed among the species and average species diversity was higher at the aspen grid. The red-backed vole revealed an affinity for this type.

Total vegetation cover was higher in Aspen than in Douglas fir and percent relative abundance was higher. However, other factors at the higher elevations including length of the growing season, harshness of the environment, vegetation species composition and tolerance range of small mammals to these factors, may be as important to small mammal abundance (and diversity) as vegetation cover.

2.3.3.3.1.2 Small Mammal Species Distribution and Abundance - The ecological distribution and abundance of each small mammal species encountered during trapping operations is defined below. Species macrohabitat affinities, average weights, Jolly-Seber estimates of density and other population parameters including immigration and survivability, and average range lengths (an indicator of home range size) are also provided. Reliable Jolly-Seber and range length estimates require sufficient recapture data for individuals of

a species. Accordingly, these estimates are the only provided for certain species (i.e., least chipmunk, Colorado chipmunk, deer mouse, golden-mantled ground squirrel and the red-backed vole) captured on the larger (1.35 and 7.29 ha) grids. Information on reproductive effort and food preferences obtained from least chipmunks, deer mice and long-tailed voles collected in major vegetation types during removal trapping operations is also presented. In order to facilitate reading of this section, tables on average weights, Jolly-Seber estimates, average range length, reproductive effort and food preferences habe been placed at the end of the small mammal report.

2.3.3.3.1.2.1 Merriam's Shrew (Sorex merriami) - Shrews are live trap shy mammals and are only occasionally captured in Sherman traps even if locally abundant. Only one shrew, a Merriam's shrew, has been captured to date during live trapping operations. The specimen was taken on grid D (sagebrush) during October, 1974. Obviously, lack of data precludes formulation of definite conclusions concerning the distribution of this species within the study area.

However, the Merriam's shrew had never been reported from the Piceance Basin prior to this capture (Robert B. Finley, National Fish and Wildlife Laboratory, personal communication). According to Lechleitner (1969) and Armstrong (1972), little is known of the habits of this shrew and nowhere does it seem to be abundant. The latter author reported that the shrew is taken most often in grasslands, open woodlands, and areas where sagebrush is the predominant vegetation.

2.3.3.3.1.2.2. Thirteen-lined Ground Squirrel (Spermophilus tridecemileatus) Only 12 thirteen-lined ground squirrels accounting for 0.44% of the total small mammal abundance (Table 2.3-49) have been captured during live trapping operations. This diurnal species showed a definite habitat affinity (Table 2.3-50) for the sagebrush stands on 84 Mesa as all captures occurred on the grid established in this type (grid 2) (Tables 2.3-52 - 2.3-54). The species was not represented in either October nor December, 1974 samples. The thirteen-lined ground squirrel spends the winter in a deep state of hibernation (Lechleitner, 1969) and was probably in the early stages of this hibernation in mid-October, 1974.

Average weight for this species ranged from 58 to 94 g (Tables 2.3-55 to 2.3-57); values much lower than those reported by both Armstrong (1972) and Lechleitner (1969).

2.3.3.3.1.2.3 Golden-Mantled Ground Squirrel (Spermophilus lateralis) - The golden mantled ground squirrel accounted for 5.41% of the total small mammal abundance (Table 2.3-49) and was the third most commonly encountered species during trapping operations. Although this diurnal species was captured in eight different habitats, it showed a definite affinity for only two types; pinyon-juniper/south slope (grid B) and pinyon-juniper/north slope (grid C) (Table 2.3-50). Armstrong (1972) supports this contention as he notes that relatively open woodlands (e.g., pinyon-juniper stands) and forest edge communities are preferred golden mantled ground squirrel habitat. The trapping record for the species during each sampling period is summarized in Tables 2.3-58 to 2.3-61 . As with most ground squirrels, it was inactive during the winter.

A sufficient number of recaptures of individuals of the species permitted the estimation of Jolly-Seber population parameters after some trap nights for grid B (pinyon-juniper/south slope) and grid C (pinyon-juniper/north slope) (Tables 2.3-62 to 2.3-63). Table 2.3-64 defines the population parameters estimated by the Jolly-Seber method and provides the corresponding notation used in these and subsequent Jolly-Seber tables. On grid C (pinyon-juniper/north slope) estimated population densities increased from May to July, 1975. The increase does not appear to be the result of recruitment of young animals since no juveniles were captured on grid C during July (Table 2.3-60), although juveniles were encountered in other habitat types during the sampling period. The increase may be an artifact of sampling; the result of increased trapping success of golden-mantled ground squirrels during July, and not the result of a greater number of animals.

Average extended range length for this species is reported for grids B and C in Tables 2.3-65 to 2.3-66 , respectively. As only individuals captured at

least at three different locations during any one sampling period were used in the analysis, sample sizes were low. However, the golden-mantled ground squirrel does appear to have the largest home range of any rodent sampled during trapping operations. It is also one of the largest rodents (Tables 2.3-67 to 2.3-69). Since large animals require more matter and energy for their maintenance, they usually must range over larger areas to obtain it than smaller animals with otherwise similar food requirements.

2.3.3.3.1.2.4 Least Chipmunk (Eutamias minimus) - The least chipmunk, represented in samples from every grid, accounted for 40.8% of the total small mammal abundance and was the second most abundant species encountered during trapping operations. Although well represented in many grid samples, this diurnal species was captured most frequently on grid 5 (mixed brush) (Table 2.3-49).

The least chipmunk is the most abundant Colorado sciurid and has the widest ecological range of any sciurid in the State. It ranges from 6,000 ft to 12,000 ft in western Colorado and utilizes a variety of habitats from sagebrush plains to coniferous forests (Lechleitner, 1969). Within the area of investigation, the least chipmunk showed a definite affinity for five habitat types (Table 2.3-50) all characterized by a high shrub cover (Table 2.3-51).

The trapping results for this species during each sampling period are summarized in Tables 2.3-70 to 2.3-73 . Like the golden-mantled and thirteen-lined ground squirrels, no least chipmunks were captured in live traps during the winter. Unlike the ground squirrels, however, the least chipmunk is not a true hibernator. However, it does enter periods of torpidity during cold weather and is generally inactive during the winter (Lechleitner, 1969).

Jolly-Seber population estimates were possible on all large grids (Tables 2.3-74 to 2.3-80) for the least chipmunk. Density estimates are consistently the highest on grid A (greasewood-sagebrush) and lowest on grids F (Douglas-fir) and G (aspen). Armstrong (1972) reported that this species avoids dense unbroken forest which explains the low densities in Douglas-fir and aspen.

Average extended range lengths are reported for the least chipmunks in Tables 2.3-81 to 2.3-84. The lack of consistently large sample sizes prevents the identification of any causal relationships between habitat type or seasons and home range. However, it is widely recognized that home ranges in habitats of low productivity may be larger for a particular species than in more productive habitats (Pianka, 1974). The least chipmunk does have a smaller range than the golden-mantled ground squirrel, as would be expected from its smaller body size (Tables 2.3-85 to 2.3-87).

The results of the analysis of stomach contents for least chipmunks collected during removal trapping operations are presented in Tables 2.3-88 to 2.3-89. The least chipmunk is mainly a seed-eater throughout most of the year. However, during the early spring, when seeds are not readily available and succulent vegetation is abundant, the latter food item is utilized more extensively.

The reproductive status of female least chipmunks collected during May, July and October, 1975 is shown in Table 2.3-90. Female chipmunks exhibit a single annual period of reproductive activity corresponding temporally to the males' breeding period (Skryja, 1974). The fact that 43% of the females examined in May were reproductively active, that no juveniles were trapped in May, and that juveniles were present in July live captures samples (Table 2.3-72, suggests the height of least chipmunk reproductive activity probably occurs prior to mid-July. The average litter size for least chipmunks, as reflected by the number of embryos, ranged from 4-7 with a mean of about 6 (Table 2.3-91).

2.3.3.3.1.2.5 Colorado Chipmunk (Eutamias quadrivittatus) - The Colorado chipmunk was the fifth most abundant small mammal captured, comprising 3.14% of the total abundance. Its distribution was limited to pinyon-juniper woodlands as it was only represented in samples from grid B (pinyon-juniper/south slope), grid C (pinyon-juniper/north slope) and grid 4 (pinyon-juniper/mixed brush). This diurnal species was most abundant on grid 4 but exhibited definite affinities for all three types (Table 2.3-50). Warren (1942) reported that the Colorado chipmunk inhabits forested and bushy areas in Colorado and is particularly fond of rocky ground. Armstrong (1972) reported that this chipmunk can range from 4200 ft to 10,500 ft elevation and typically inhabits areas of broken rocks and open coniferous woodland.

Trapping results for the Colorado chipmunk are presented in Tables 2.3-92 to 2.3-95 . Expectedly, the species was not captured during the winter. Jolly-Seber population estimates are presented for grids B and C in Tables 2.3-96 and 2.3-97 , respectively. Insufficient recapture data did not permit the estimation of population parameters for many trap nights and thus formulation of definite conclusions concerning these estimates are precluded at this time.

Average range lengths are provided in Tables 2.3-98 to 2.3-99 . Average weights are shown in Tables 2.3-100 to 2.3-102 . As evidenced by the data, the Colorado chipmunk is slightly larger than the least chipmunk and has a larger home range.

2.3.3.3.1.2.6 Deer Mouse (Peromyscus maniculatus) - The deer mouse was the most frequently encountered small mammal during trapping operations accounting for 41.65% of the total captures (Table 2.3-49). This nocturnal species was captured in all habitat types but was most abundant in rabbitbrush (grid 3). Its habitat preferences (Table 2.3-50) are similar to those of the least chipmunk in that it shows an affinity for habitat types with a high shrub cover (Table 2.3-51).

The summary of trapping results for deer mice within each habitat type during each sampling period is shown in Tables 2.3-103 to 2.3-107.

Jolly-Seber population estimates are provided in Tables 2.3-108 to 2.3-112 for all large grids except those established in Douglas-fir and aspen. Like the least chipmunk, the highest densities for the deer mouse occurred on grid A (greasewood-sagebrush). It also occurred at high population levels on grid E (mixed brush). Both of these grids are characterized by a high shrub cover (Table 2.3-51).

Brown (1967) found the deer mouse to be most abundant in sagebrush and mountain mahogany communities in southeastern Wyoming. He suggested that these vegetation types produce large quantities of seeds suitable for consumption by deer mice. Larrison and Johnson (1973) reported deer mice to be the most abundant rodent in disturbed sagebrush and shadscale communities in Idaho.

The species commonly occurs at all elevations in Colorado from low meadows to alpine tundra (Warren, 1942) and is the most abundant of all Colorado mammals (Armstrong, 1972). Williams (1955), in surveying mice and shrew distribution in central Colorado during the summer, found the deer mouse to be common in all montane communities sampled above 8,700 ft elevation, and most abundant on disturbed areas some of which were above 9,600 ft elevation. Brown (1967) rarely captured deer mice in spruce fir forests but found them common in aspen stands in the Medicine Bow Mountains of Wyoming.

Average extended range lengths are shown for the deer mouse in Tables 2.3-113 to 2.3-116. As with the least chipmunk, samples sizes are not consistently sufficient to ascertain the relationship between habitat and home range or determine if inherent sex difference exists in the size of the home range. However, one unexpected trend is indicated by these data. Although deer mouse body weights average about 10 gm less than the least chipmunk's (Tables 2.3-117 to 2.3-119), its average range length for most sampling periods is comparable to the chipmunks. This trend is contradictory to that established by the data for other species (golden-mantled ground squirrel, Colorado chipmunk, and least chipmunk) with sufficient range length data. Thus, it appears that although the deer mouse requires less energy and matter than the chipmunk by virtue of its smaller size, it searches just as far to find it.

The results of the analysis of stomach contents of deer mice collected during removal trapping are shown in Tables 2.3-120 and 2.3-89 . Like the least chipmunk, the deer mouse is primarily a seed eater. It is active the year around and appears to utilize seeds more extensively during the winter when succulent vegetation would be limited. Although the deer mouse did not appear to utilize succulent vegetation as often as the least chipmunk, it appears to be slightly more omnivorous in its food habits. Jameson (1952), in a study of the food preferences of this species in California, found that they used a wide variety of foods. In the vicinity of Tract C-a, they were the only species of the three whose stomachs were examined that utilized invertebrates or vertebrates (probably carrion) to any extent.

The reproductive status of the female deer mice collected during removal trapping is shown in Table 2.3-90 . Most females examined in May were active, all were active in July and 50% were active as late as October. King (1968) reported that deer mice may experience a breeding season as long as six months and have up to 3 litters in one season. A similar length breeding season and number of litters appears to be evident here.

Average litter size, again as indicated by the average number of embryos, ranged from 4.5 to 6.7 with a grand mean of about 5.5 (Table 2.3-91). This is consistent with litter size of deer mice reported by Brown (1966) in a study in the Laramie Basin of Wyoming.

2.3.3.3.1.2.7 Pinon Mouse (Peromyscus truei) - Only 27 pinon mice were captured during all trapping periods and these accounted for less than 1% of the total small mammal captures. Its distribution was limited to pinyon-juniper woodlands as it was only captured at 2 grids, grid B (pinyon-juniper/ south slope) and grid C (pinyon-juniper/north slope) (Table 2.3-49). It was captured more frequently on grid B but showed definite affinities for both habitat types (Tables 2.3-50).

The trapping results for the nocturnal piñon mouse are summarized for each sampling period in Tables 2.3-121 to 2.3-125. In Colorado, this species is noted as being common only in pinyon-juniper below 7,000 ft elevation (Lechleitner, 1969) but has been reported as an uncommon occurrence in pinyon-juniper up to 8,500 ft elevation in western Colorado (Armstrong, 1972). Douglas (1969) indicated that the piñon mouse is generally restricted to pinyon-juniper woodlands because it is dependent on the juniper for nesting sites and juniper berries as its preferred winter food.

Average weights for this species are provided in Tables 2.3-126 to 2.3-128. The piñon mouse appears to be slightly larger than its congener the deer mouse.

2.3.3.3.1.2.8 Bushy-tailed Woodrat (Neotoma cinerea) - The bushy-tailed woodrat was the seventh most frequently encountered small mammal during trapping operations. This nocturnal species was captured on three different grids,

grid B (pinyon-juniper/south slope), grid C (pinyon-juniper/north slope), and grid D (sagebrush) (Table 2.3-49). Most of the woodrats were captured on grid B, and the species showed a definite affinity for this habitat type (Table 2.3-50).

The trapping results for the bushy-tailed woodrat are shown in Tables 2.3-129 to 2.3-132. The species was not captured during the winter sampling period though Lechleitner (1969) reported that this woodrat does not hibernate.

Bushy-tailed woodrat nests were frequently seen throughout the study area in crevices in vertical cliffs or other high rock outcrops. However, the species may select den sites in a variety of locations (Lechleitner, 1969). On grid B (pinyon-juniper/south slope) where bushy-tailed woodrats were most frequently captured, nest sites were most often observed at the base of live juniper trees. Stones (1960) examined 233 woodrat houses on west-central Utah and found that 90% were in direct association with live junipers.

Average weights for this species are reported in Tables 2.3-133 to 2.3-135. The bushy-tailed woodrat is the largest small mammal species in the study area with adult body weights ranging from 130-200 gm.

2.3.3.3.1.2.9 Red-Backed Vole (Clethrionomys gapperi) - The red-backed vole was one of four vole species encountered during trapping but was the most abundant vole, accounting for 3.62% of the total number of small mammals encountered (Table 2.3-49). The species was captured on three grids, grid E (mixed brush), grid F (Douglas-Fir) and grid G (aspen), all above 8,000 ft. Warren (1942) reported that the red-backed vole rarely occurs below 8,000 ft elevation and Armstrong (1972) stated that this boreal forest species is usually confined to well-developed coniferous zones from 8,000 to 11,000 ft in Colorado. Williams (1955) found the red-backed vole to be abundant in lodgepole pine forests in central Colorado and Brown (1967) reported this species to be very numerous in spruce-fir forests, common in lodgepole pine and present, but in fewer numbers, in aspen in southeastern Wyoming. However, in the Piceance Basin, the red-backed vole was encountered more frequently in aspen (Table 2.3-49) but indicated definite affinities for both aspen and Douglas-fir (Table 2.3-50).

The trapping results for the red-backed vole are presented in Tables 2.3-136 to 2.3-140. Lechleitner (1969) reported that this species, like all the vole species encountered during trapping, can be seen during the day or night, but is most active at night. It is also active throughout the winter.

Jolly-Seber population estimates and estimates of average trap range on grids F (Douglas-fir) and G (aspen) are presented in Tables 2.3-141 to 2.3-145. The paucity of data, however, precludes formulation of definite conclusions concerning absolute densities and home ranges for this species at this time.

Average weights are provided in Tables 2.3-146 to 2.3-148. Along with the sagebrush vole, the red-backed vole is the smallest of the vole species captured during trapping operations.

2.3.3.3.1.2.10 Montane Vole (Microtus montanus) - Only 5 montane voles were captured during trapping operations accounting for only 0.18% of the total small mammal abundance. Although the species was captured in 3 different habitat types (Table 2.3-49) the majority of the captures occurred on grid 1 (bottomland meadow) and it showed a definite affinity for this type (Table 2.3-50). Williams (1955) captured montane voles in stream bottom and grazed meadow communities in central Colorado. Brown (1967) likewise found this vole to be common in grassy meadow situations in southeastern Wyoming.

The trapping results for the montane vole are shown in Tables 2.3-149 to 2.3-152 . It was captured during all sampling periods except number 5, September-October, 1975.

Average weights for the montane vole are presented in Tables 2.3-153 to 2.3-154 . The montane vole is the largest of the four voles captured to date during trapping operations.

2.3.3.3.1.2.11 Long-tailed Vole (Microtus longicaudus) - The long-tailed vole was the second most frequently captured vole species accounting for 1.35% of the total small mammal abundance. The species was captured in five

different habitat types but was most often caught on grid A (greasewood-sagebrush) (Table 2.3-49), and shows a definite affinity for this habitat type (Table 2.3-50). The long-tailed vole inhabits a variety of habitat types in Colorado, from wet meadow to dry rocky slopes (Warren, 1942) and has a wide altitudinal range, from below 5,000 ft elevation to above timberline in western Colorado (Armstrong, 1972). Armstrong (1972), however, reported that this vole is most abundant in streamside meadows with a thick ground cover. Durrant and Robinson (1962) found this species to be common in brushy meadows with a sparse herbaceous stratum in southwestern Colorado, suggesting that the long-tailed vole is not as dependent on dense ground cover as is the montane vole. Brown (1967) found the long-tailed vole to be common in meadow and bog situations and in aspen forests but absent from sagebrush and mountain mahogany communities in southeastern Wyoming.

The trapping results for the long-tailed vole are shown in Tables 2.3-155 to 2.3-159. This species was represented in samples from every trapping period. Average weights are presented in Tables 2.3-160 to 2.3-162. This vole is larger than the red-tailed and sagebrush vole but slightly smaller than the montane vole.

Food preferences for the long-tailed vole captured during removal trapping operations in aspen are presented in Table 2.3-163. As indicated by the data, the long-tailed voles are primarily herbaceous feeders and take advantage of succulent foods almost exclusively when available (Rieve, 1973). During May, when succulent foods were scarce at high elevations, and late summer, the long-tailed voles utilized seeds to a greater extent.

The reproductive status of female long-tailed voles collected during May, July, and October, 1975 from the aspen vegetation type are shown in Table 2.3-90 . Peak reproductive activity for voles inhabiting aspen communities appeared to occur during July as none of the females examined in May were active, all were active in July and 50% were active in October. Female long-tailed voles, like most of the rodents in the study area, are polyestrous (capable of more than one litter in a season). Average litter size appears to be about 4.5 (Table 2.3-91). This is consistent with litter sizes reported for the long-tailed voles by Lechleitner (1969).

different habitat types but was most often caught on grid A (greasewood-sagebrush) (Table 2.3-49), and shows a definite affinity for this habitat type (Table 2.3-50). The long-tailed vole inhabits a variety of habitat types in Colorado, from wet meadow to dry rocky slopes (Warren, 1942) and has a wide altitudinal range, from below 5,000 ft elevation to above timberline in western Colorado (Armstrong, 1972). Armstrong (1972), however, reported that this vole is most abundant in streamside meadows with a thick ground cover. Durrant and Robinson (1962) found this species to be common in brushy meadows with a sparse herbaceous stratum in southwestern Colorado, suggesting that the long-tailed vole is not as dependent on dense ground cover as is the montane vole. Brown (1967) found the long-tailed vole to be common in meadow and bog situations and in aspen forests but absent from sagebrush and mountain mahogany communities in southeastern Wyoming.

The trapping results for the long-tailed vole are shown in Tables 2.3-155 to 2.3-159. This species was represented in samples from every trapping period. Average weights are presented in Tables 2.3-160 to 2.3-162. This vole is larger than the red-tailed and sagebrush vole but slightly smaller than the montane vole.

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The reproductive status of female long-tailed voles collected during May, July, and October, 1975 from the aspen vegetation type are shown in Table 2.3-90 . Peak reproductive activity for voles inhabiting aspen communities appeared to occur during July as none of the females examined in May were active, all were active in July and 50% were active in October. Female long-tailed voles, like most of the rodents in the study area, are polyestrous (capable of more than one litter in a season). Average litter size appears to be about 4.5 (Table 2.3-91). This is consistent with litter sizes reported for the long-tailed voles by Lechleitner (1969).

2.3.3.3.1.2.12 Sagebrush Vole (Lagurus curtatus) - Only 22 sagebrush voles were captured during live trapping operations which accounted for 0.80% of the total small mammal captures. The species was trapped most often on grid D (sagebrush) and grid E (mixed brush) (Table 2.3-49) and showed a definite affinity for both of these habitat types (Table 2.3-50). It was also captured on grid 1 (bottomland meadow) during October and December, 1974. Sagebrush voles are usually associated with arid situations in Colorado (Lechleitner, 1969) and are generally limited to stands of sagebrush mixed with other shrubs up to 9,000 ft elevation in Rio Blanco County (Armstrong, 1972). Larrison and Johnson (1973) found the sagebrush vole to be present in small numbers only in sagebrush and crested wheatgrass communities in Idaho.

The trapping results for this species during each sampling period are shown in Tables 2.3-164 to 2.3-168. As are all the vole species encountered during trapping, the sagebrush vole is active throughout the year.

Average weights are reported in Tables 2.3-169 to 2.3-171. The sagebrush vole was one of the smallest of the vole species captured during trapping operations.

2.3.3.3.1.2.13 Apache Pocket Mouse (Perognathus apache) - The apache pocket mouse was one of the less commonly trapped small mammal species during trapping operations and accounted for only 0.44% of the total captures. Although this nocturnal species was captured at five different grids (Table 2.3-49), it was caught more frequently on two pinyon-juniper sites, grid 6 (pinyon-juniper/sagebrush) and grid B (pinyon-juniper/south slope), and showed an affinity for both of these types (Table 2.3-50). Armstrong (1972) reported that the apache pocket mouse generally inhabits sandy sites where burrows are constructed beneath low brush or cactus. Douglas (1969) captured this species in a burned-off pinyon-juniper woodland in Colorado.

The trapping results for the apache pocket mouse are reported in Tables 2.3-172 to 2.3-174. Although the species was not represented in December, 1974 samples (nor October, 1974 samples), Lechleitner (1969) reports that the species does not hibernate.

Average weights are presented in Tables 2.3-175 to 2.3-177. Except for the masked shrew, the apache pocket mouse was the smallest small mammal species captured during live trapping operations.

2.3.3.3.1.3 Seasonal Variations in Small Mammal Abundance - The seasonal changes that occur in the abundance of small mammal populations in the vicinity of Tract C-a are best illustrated by the data presented in Table 2.3-48. The highest trapping success occurred during sample period 1, October, 1974, when an average of 15.39 individuals/100 trap nights was recorded. Small mammal populations are generally at their peak levels in late summer following the breeding period. This was evidenced by a high trapping success during October for most of the species, the notable exception being the golden-mantled ground squirrel and the thirteen-lined ground squirrel. However, these species are true hibernators (Lechleitner, 1969) and had probably entered a state of reduced activity corresponding with the onset of cooler days and longer nights. Although not true hibernators, the least and Colorado chipmunks may stay in their burrows for extended periods during cold weather, sometimes in a torpid state. During this time, they may utilize stored foods gathered during more favorable times thus eliminating the need to forage during winter (Lechleitner, 1969). Due to the absence of these ground squirrel and chipmunk species, trapping success (5.37 individuals/100 trap nights) was greatly reduced during the December, 1974 sampling period.

Although all species were represented in the May, 1975 samples, total abundance (12.71 individuals/100 trap nights) as indicated by trapping success was reduced from October, 1974 samples. Most small mammal populations existing in cooler climates are undoubtedly somewhat reduced by overwinter mortality. The extent of the overwinter mortality is indicated by the Jolly-Seber parameter Φ, the probability an animal alive at time i survives to time i+1, estimated for those species on the larger grids with sufficient recapture data. In almost all instances, this parameter was the lowest for trap night 5, indicating low probability of survival from October, 1974 to May, 1975. Also, although some small mammals may have been at their height of reproductivity

during late May, recruitment of juveniles into the active foraging population did not occur until later in the summer. This is evidenced by the trapping results provided for each species as juveniles of three species only, deer mouse, golden-mantled ground squirrel, and apache pocket mouse, were captured during May. Thus, the effects of overwinter mortality coupled with the absence of newly recruited juveniles were probably the main reasons for the reduced small mammals' population levels indicated in May.

As indicated by the reproductive status for female least chipmunks, deer mice, and long-tailed voles, most small mammal species were probably near their height of reproductive activity during July. Correspondingly, juveniles of practically all species were caught in July grid samples. Therefore, an increase in trapping success would be expected in July not a decrease as indicated by the data (11.37 individuals/100 trap nights in July versus 12.71 in May).

However, in this instance trapping success was probably not a good indication of total small mammal population levels. During July, productivity is high and food is abundant. Therefore, baiting materials were probably not as attractive to small mammals as during other periods when food was not as plentiful. The result was a decrease in number of animals attracted to the traps and a corresponding decrease in trapping success.

By October, most of the species were finished or nearly finished reproducing and many new juveniles were present in trapping samples. Natural foods were less abundant than in July and most small mammals were probably again attracted to peanut butter, oats, and cracked corn. The result, as expected, was an increase in trapping success (14.52 individuals/100 trap nights). In fact, small mammal population levels in October, 1975, as indicated by trapping success, were comparable to the levels found during October, 1974 sampling.

2.3.3.3.2 Pitfall Trapping - To insure that all small mammal species present in the vicinity of Tract C-a were inventoried, pitfall traps were established in all major vegetation types. These traps are designed to capture live-trap shy small mammals, or those not attracted to the peanut butter-oats-cracked

corn bait used in live trapping. The results of the pitfall trapping program are presented in Table 2.3-178.

To date, only one small mammal species not documented by live trapping methods has been captured in pitfall traps. The masked shrew (Sorex cinereus) was captured in greasewood-sagebrush (pitfall A) during October and December, 1974 and in sagebrush (pitfall D) during October, 1974. However, one vole and two shrews were caught during October, 1975 pitfall trapping operation, which had not been positively identified. This is presently being done by Dr. Robert B. Finley, a mammalogist with the National Fish and Wildlife Laboratory.

The northern pocket gopher has been captured both in pitfall traps (May, 1975) and live traps (May and July, 1975) on the bottomland meadow grid. This gopher, as other pocket gophers, is highly specialized for a fossorial life and spends the majority of its time underground (Lechleitner, 1969). This species has the broadest geographic and altitudinal range of Coloradoan pocket gophers. It also has the broadest ecological tolerance, occurring in greatest numbers on deep sandy soils, but colonizing heavy clays and coarse, gravelly soils as well (Armstrong, 1972).

The masked shrew is the second shrew species that has been documented to date in the study area. The other species, Merriam's shrew, was captured in a live trap on grid D (sagebrush) during October, 1974. Shrews are highly insectivorous (Lechleitner, 1969) which may account for the low incidence of captures in live traps.

Although all specimens of the masked shrew were taken in well-drained, predominately sagebrush stands, both Armstrong (1972) and Lechleitner (1969) reported that this species is most commonly found in moist habitats within coniferous forests. It is expected therefore that the as yet unidentified shrew taken from the pitfall established in aspen vegetation will also be a masked shrew.

2.3.3.3.3 Night Spotlight Census - The night spotlight census was conducted on the nights of November 11 and 13, 1974, February 10 and 12, June 22 and 25, and October 19, 1975. Only one night of the spotlight census was performed

Table 2.3-178 Summary of pitfall trapping results for each sampling location during each sampling period to date for RBOSP

Sampling Location*	Vegetation Type	Sampling Period				
		October, 1974	December, 1974	May, 1975	July, 1975	October, 1975
1	Bottomland Meadow	**	**	2 Montane voles; 1 Northern pocket gophers	--	--
2	Sagebrush	**	**	1 apache pocket mouse	1 deer mouse	
3	Rabbitbrush	**	**		2 apache pocket mice	
4	Pinyon-juniper/mixed brush	**	**		2 deer mice 1 apache pocket mouse	1 vole***
6	Pinyon-juniper/sagebrush	**	**		--	--
7	Upland Meadow	**	**	1 apache pocket mouse	--	3 deer mice 1 shrew ***
A	Greasewood/sagebrush	1 masked shrew	2 masked shrews	--	--	1 sagebrush vole
B	Pinyon-juniper (south slope)	--	--	--	--	1 deer mouse
C	Pinyon-juniper (north slope)	--	--	--	--	--
D	Sagebrush	1 masked shrew	--	1 apache pocket mouse	2 deer mice	--
E	Mixed Brush	**	**	--	1 long-tailed vole	1 sagebrush vole
F	Douglas - fir	**	**	--	--	--
G	Aspen	**	**	**	--	1 shrew***
H	Riparian	--	--	--	--	--

* Except for H(Riparian) sampling locations are established in the same types as small mammal live trapping grids.
** Pitfall traps not established.
*** Positive species identifications are presently being confirmed by Dr. Robert B. Finley, a mammologist with the National Fish and Wildlife Laboratory.

during October, 1975 because of unfavorable weather conditions and the onset of mule-deer hunting season.

This method of censusing nocturnally-active animals, especially lagomorphs, has proven valuable in short-grass plains situations but encounters problems of visibility in the Piceance Basin due to the dense vegetation and varied terrain. A modification of the standard method, as applied by ECI, helps to account for this lack of visibility. The results of all census periods are presented in Table 2.3-179.

The presence of at least three species of lagomorphs have been documented to date on or near Tract C-a. The white-tailed jackrabbit (Lepus townsendii) and the black-tailed jackrabbit (L. californicus) were easily identified by field observation, but the cottontail (Sylvilagus sp.) is much more difficult to distinguish to species. A specimen was collected by ECI personnel and identified by Dr. Robert B. Finley of the National Fish and Wildlife Laboratory as a Nuttall's cottontail (Sylvilagus nuttallii). However, it is possible that more than one species of cottontail resides in the study area. Two lagomorph species (cottontail and white-tailed jackrabbit) and the porcupine (Erethizon dorsatum) were observed during night spotlight censuses conducted thus far.

The white-tailed jackrabbit occurs on the plains and in open areas within the Colorado mountains where it feeds primarily on herbaceous material during spring, summer, and fall, but consumes more shrubs during the winter (Lechleitner, 1969). It has been observed on the Tract C-a study area in the upland sage vegetation type of the 84 Mesa and among sparse sage or on open grassy areas of the Cathedral Bluffs. The black-tailed jackrabbit has been observed, and a specimen taken, on the mowed hay field near the 84 ranch. This jackrabbit is smaller than the white-tailed jackrabbit and characterized by a black dorsal stripe extending from the tail onto the rump; its winter pelage is never white as in the case of the white-tailed jackrabbit (Lechleitner, 1969).

Nuttall's cottontail or the mountain cottontail is the only cottontail species identified from specimens taken to date. It inhabits edge situations at

Table 2.3-179 Results of the night spotlight censuses conducted November 11 and 13, 1974, February 10 and 12, June 22 and 25 and October 19, 1975 for RBOSP

Species	Number Sighted	Hectares Covered	Pop. Est./ Hectare
	November, 1974		
Cottontail (Sylvilagus sp.)	3	136.7	0.02
White-tailed jackrabbit (Lepus townsendii)	1	136.7	0.01
	February, 1975		
There were no animals observed during this night census period.			
	June, 1975		
Cottontail (Sylvilagus sp.)	4	120.4	0.03
White-tailed jackrabbit (Lepus townsendii)	4	120.4	0.03
Porcupine (Erethizon dorsatum)	2	120.4	0.02
	October, 1975		
There were no animals observed during this night census period.			

elevations ranging from 6,000 to 11,000 ft and feeds on a variety of grasses, sedges, forbs, and shrubs (Armstrong, 1972); Lechleitner, 1969). The desert cottontail, which also may be present in the Tract C-a area, characteristically occurs at elevations below 7,000 feet and may cohabit the mountain valleys of western Colorado with Nuttall's cottontail (Lechleitner, 1969).

Lagomorph population estimates and general field observations indicate that current lagomorph populations are low. Data gathered by Colorado Division of Wildlife personnel across western Colorado support this finding and show that lagomorph populations reached their cyclic low during 1974 after having reached a high plateau during 1970. Populations are expected to increase during the next few years (Claud White, Regional Game Management Biologist for the Colorado Division of Wildlife, personal communication, 1975).

The porcupine (Erethizon dorsatum) is a large, stout-bodied rodent, semi-arboreal in habit, which feeds primarily on the leaves, bark, buds, and twigs of both deciduous and coniferous trees. They sometimes eat forbs and grasses as well (Lechleitner, 1969). Trees stripped of bark provide evidence of the presence of porcupine in many of the pinyon stands in the Tract C-a study area.

2.3.3.3.4 Bat Investigations - Mist netting for bats took place on four consecutive nights in June and on four consecutive nights in August, 1975. One or two nets were operated each night and over both periods a total of 4 locations were sampled. At 3 of these locations, the nets were placed over stock tanks and at the fourth location, the net was placed over a small shallow pond. Five bat species have been captured to date.

In June, the long-eared myotis (Myotis evotis) and the small-footed myotis (M. leibii) were captured at two stock tanks in bottomland sagebrush habitats. The small-footed myotis is known to occur in a variety of situations throughout the state and to over-winter in Colorado as well (Armstrong, 1972). The long-eared myotis occurs in sparse coniferous forests and semiarid shrublands in western Colorado, and migrates out of the state in winter (Armstrong, 1972).

In August, 4 bat species were captured in one of the same bottomland sagebrush locations sampled in June. In addition to the two above-mentioned bats, the California myotis (Myotis californicus) and the big brown bat (Eptesicus fuscus) were netted over this stock tank in August. The California myotis is a species of western North America and occurs only in western-most Colorado at lower elevations (Armstrong, 1972). The big brown bat is one of the most common bats in Colorado as well as in the United States. This species is well adapted to human inhabitation, roosting most often in man-made structures; and, like the small-footed myotis, the big brown bat over-winters in the state (Lechleitner, 1969).

Also during August sampling, a hoary bat (Lasiurus cinereus) and a small-footed bat were captured at a small pond located near a dense stand of rabbitbrush below the Stake Springs impoundment. The hoary bat is much larger than any of the Myotis species and occurs statewide at lower and middle elevations, but nowhere appears abundant (Lechleitner, 1969).

Large, solitary bats have been observed in flight on Cathedral Bluffs (elevations up to 8,500 ft) during mammal night spotlight censuses. However, our attempt to mist net any of these bats over a stock tank near the top of the bluffs in August was unsuccessful. Dr. Robert B. Finley of the National Fish and Wildlife Service (personal communication) has been mist netting bats in the area and suspects from his captures north and east of Tract C-a that the hoary bat would occur predominantly at the higher elevations of the study area near coniferous forests. The silver haired bat (Lasionycteris noctivagans) and the big brown bat may also appear at these higher elevations on Cathedral Bluffs.

2.3.3.3.5 Summary of Quarterly Data (September through November, 1975)

With the exception of the northern pocket gopher, all species that had previously been live-trapped were captured during the October, 1975 live-trap sampling period. The number of animals captured on all grids totaled 753, which is slightly lower than the total for October, 1974, but higher than that obtained for any other sampling period during the past year. This high trap

success in early fall is the expected result of the recruitment of new individuals into small mammal populations following spring and summer reproductive activity. Grids displaying the highest relative abundances of small mammals were mixed brush (north slope), greasewood-sagebrush, and rabbitbrush. As in the previous sampling periods, the most abundant species were the deer mouse and the least chipmunk, which together accounted for 88% of the total number of animals captured.

Pitfalls operated during the October small-mammal sampling period captured nine animals. Two of these were shrews and are presently being identified by Dr. Robert Finley of the National Fish and Wildlife Laboratory.

Analysis of stomach contents was performed upon 13 deer mice, four least chipmunks, and five long-tailed voles. The deer mice were captured in greasewood-sagebrush, sagebrush, and mixed brush and showed a preference for seed. The major part of the diet of the least chipmunks, which were snap-trapped in mixed brush, also consisted of seed. The long-tailed voles were captured in aspen and predominantly fed upon succulent plant material.

Reproductive status was determined for eight deer mice, eight least chipmunks, and five long-tailed voles. Of these, four deer mice and two long-tailed voles showed signs of reproductive activity.

The October night spotlight census was performed on only one night because of unfavorable weather conditions and the onset of deer hunting season. During the survey six mule deer and seven feral horses were recorded.

2.3.3.4 Summary and Conclusions - The presence of 28 species of small (and medium-sized) mammals has been documented by live, removal, and pitfall trapping, night spotlight censusing, mist netting (for bats) and opportunistic observations in the vicinity of Tract C-a (Table 2.3-41). Data collected during live-trapping operations from over 2700 individuals, comprising 13 small mammal species, have permitted the formulation of several generalizations concerning the distribution and abundance of small mammal populations among major habitats

within the area of investigation. Although these generalizations were drawn from live-trapping data the generalizations are not necessarily restricted to live-trappable small mammals but are probably applicable to all small (and medium-sized) mammals encountered except, of course, bats.

Small mammals ultimately depend upon vegetation for food, shelter, and in some cases as their only supply of water. Consequently, vegetation, specifically the amount and kind of vegetation, is the most important factor controlling the distribution and abundance of small mammal populations in the vicinity of Tract C-a. Elevation appears to be important also, especially for some species.

Within habitats sampled below 8000 ft elevation, the amount of shrub cover appears to be the most important factor regulating the abundance of small mammals. The largest number of small mammals captured per unit trapping effort (i.e., individuals/100 traps) occurred on grid 3 (rabbitbrush), followed in order by grid A (greasewood-sagebrush) and grid 5 (mixed brush) (Table 2.3-48). Vegetation data collected from permanent phytosociological transects on or near small mammal grids showed that these grids also exhibited the highest shrub cover of all grids below 8000 ft (Table 2.3-51). Accordingly, the grid with the fewest captures below 8000 ft, grid 1 (bottomland meadow), also exhibited the lowest shrub cover.

Although the same trend holds true for grids above 8000 ft, i.e., more small mammals are encountered in habitats with a higher shrub cover, total small mammal abundance is lower for these grids than for those at lower elevations. This is undoubtedly due to the harsher conditions and shorter growing season at the higher elevation.

Species diversity, as indicated by the Shannon-Weiner index which accounts for both number of species and number of individuals of each species, seems to be tied closely to the presence or absence of trees (i.e., pinyon-juniper) in habitats below 8000 ft. Of the larger (7.29 ha) grids, the two that consistently showed the highest diversity were the two established within pinyon-juniper woodlands, grid B (pinyon-juniper/south slope) and grid C (pinyon-juniper/

rth slope). Likewise, grid 4 (pinyon-juniper/mixed brush) had ne highest species diversity for the 0.81 ha grids. Pinyon and juniper rees provide food for many small mammal species that eat the highly nutritious pinyon nuts and juniper berries. The latter are more consistently available than pinyon nuts as they remain on trees a large part of the year and are not so completely destroyed by insects as pinyon nuts (Frischknecht, 1975). The cambium of pinyon may also be eaten by certain species and the shreddy bark of juniper is often used in nest building (Frischknecht, 1975).

The value of pinyon and juniper trees as a source of food and potential nesting sites is further emphasized when it is noted that eight of the 13 species encountered during all live-trapping operations inhabited pinyon-juniper woodlands. In fact, three of the species, piñon mouse, Colorado chipmunk, and the bushy-tailed woodrat, were generally limited to this vegetation type. Another species, the golden-mantled ground squirrel, was caught almost exclusively on grids established within or adjacent to pinyon-juniper woodlands (Table 2.3-49).

At elevations above 8000 ft the harshness of the environment--not the presence or absence of trees--is probably the primary determining factor in the distribution of small mammals. Of the 13 species encountered, only 5 were captured in grids established at the higher elevations. Furthermore, only one trappable small mammal species, the red-backed vole, is adapted to the environmental extremes of the higher altitudes (Lechleitner, 1969).

The two most abundant small mammal species within the vicinity of Tract C-a are the least chipmunk and the deer mouse. Both were represented in samples from every grid and together accounted for 82.45% of the total small mammal abundance. The habitat affinities of the least chipmunk and the deer mouse, as indicated by chi-square values (Table 2.3-50), were almost identical as both species were caught more frequently in habitat types with a high shrub cover.

The golden-mantled ground squirrel, though not nearly as abundant as either the least chipmunk or the deer mouse, was the third most frequently captured

small mammal, accounting for 5.41% of the total abundance. This species indicated a definite affinity for pinyon-juniper woodlands as did three other species, the Colorado chipmunk, piñon mouse, and the bushy-tailed woodrat, discussed previously.

The other seven trappable small mammal species were captured rather infrequently and accounted for only 6.87% of the total abundance. However, some species were predominant in certain habitat types and a definite pattern of macrohabitat preferences was discernible for all.

Captures of the thirteen-lined ground squirrel were limited to the grid established in sagebrush vegetation on 84 Mesa, and accordingly, the species showed a definite affinity for this habitat. The apache pocket mouse was captured within five different types but showed an affinity for pinyon-juniper woodlands. Merriam's shrew, by virtue of its one capture in sagebrush, indicated an affinity for that type. This affinity , however, is substantiated by the literature (Armstrong, 1972).

Of the four vole species, the red-backed vole was the most abundant. It is adapted for living at elevations above 8000 ft (Lechleitner, 1969) and was the predominant small mammal in both Douglas-fir and aspen vegetation. The montane vole showed a definite affinity for bottomland meadow while its cogener, the long-tailed vole, indicated an affinity for the thick greasewood-sagebrush-rabbitbrush stands characteristic of the bottomland drainages. The sagebrush vole, as its name implies, revealed a preference for sagebrush as well as for mixed brush.

Of the three species collected by removal trapping for analyses of stomach contents, two, the least chipmunk and the deer mouse, indicated preferences for seeds. However, both utilized succulent materials more frequently in the spring when new seeds were not yet abundant. The deer mouse was slightly more omnivorous in its food habits as invertebrates and vertebrate materials were occasionally observed in stomach contents. Long-tailed voles, collected within the aspen vegetation type, utilized primarily succulent materials. However, it too was opportunistic when its favored food was not available, since

a high percentage of seeds was found in stomachs of specimens collected in early spring.

As indicated by both the proportion of juveniles in samples taken from each trapping period and reproductive data collected from least chipmunk, deer mouse, and long-tailed vole specimens, the peak of the reproductive activity for most of the small mammal species encountered appears to occur from May to July. Correspondingly, small mammal population levels are at their highest in late summer after the breeding season. Overwinter mortality results in population lows during early spring.

Several species of small and medium sized mammals not amenable to inventory by the live-trapping techniques employed where documented by other methods. Pitfall traps, established in all major habitats, revealed the presence of the masked shrew.

A cottontail and two species of jackrabbits, the white-tailed jackrabbit and the black-tailed jackrabbit, as well as the porcupine, were seen during night spotlight censuses. The censuses confirmed information obtained from the Colorado Division of Wildlife that lagomorph population levels in the Piceance Basin are low.

The presence of two species of bats, the long-eared myotis and the small-footed myotis, were revealed by mist netting during June, 1975. Two more species, the California myotis and the hoary bat, were documented during August sampling.

Tables for the
Small Mammals Section

Table 2.3-40 Approximate number of individuals of the three most common species being collected for laboratory analysis of reproductive effort and stomach contents within major vegetation types during each sampling period for RBOSP

Vegetation Type	Number of Individuals for Each Species [1]		
	Least Chipmunk (*Eutamias minimus*)	Deer Mouse (*Peromyscus maniculatus*)	Long-tailed Vole (*Microtus longicaudus*)
Aspen			5
Mixed brush	5	5	
Pinyon-juniper (southern slope)	5	5	
Pinyon-juniper (northern slope)	5	5	
Sagebrush	5	5	
Greasewood-Sagebrush	5	5	5
TOTAL	25	25	10

[1] These species were selected because they are among the most abundant small mammal species in the vicinity of Tract C-a and are representative of three different groups of rodents (sciurids, cricetids, and microtines).

Table 2.3-41 Species of wild mammals encountered to date in the vicinity of Tract C-a for RBOSP.*

FAMILY Species	Common Name	4-letter Code**
SORICIDAE (Shrews)		
Sorex cinereus	Masked shrew	
Sorex merriami	Merriam's shrew	SOME
VESPERTILIONIDAE		
Myotis californicus	California myotis	
Myotis evotus	Long-eared myotis	
Myotis leibii	Small-footed myotis	
Eptesicus fucus	Big brown bat	
Lasiurus cinereus	Hoary bat	
LEPORIDAE (Hares and rabbits)		
Sylvilagus nuttallii	Nuttall's cottontail	
Lepus californicus	Black-tailed jackrabbit	
Lepus townsendii	White-tailed jackrabbit	
SCIURIDAE (Squirrels, ground squirrels, chipmunks)		
Eutamias minimus	Least chipmunk	EUMI
Eutamias quadrivittatus	Colorado chipmunk	EUQU
Spermophilus lateralis	Golden-mantled ground squirrel	SPLA
Spermophilus tridecemlineatus	Thirteen-lined ground squirrel	SPTR
Tamiasciurus hudsonicus	Red squirrel	
GEOMYIDAE (Pocket gophers)		
Thomomys talpoides	Northern pocket gopher	
HETEROMYIDAE (Pocket mice, kangaroo mice and kangaroo rats)		
Perognathus apache	Apache pocket mouse	PEAP
CRICETIDAE (New World mice and rats)		
Peromyscus maniculatus	Deer mouse	PEMA
Peromyscus truei	Pinon mouse	PETR
Neotoma cinerea	Bushy-tailed woodrat	NECI
Clethrionomys gapperi	Gapper's red-backed vole	CLGA

Table 2.3-41 (Continued)

FAMILY Species	Common Name	4-letter Code**
CRICETIDAE (Continued)		
Microtus longicaudus	Long-tailed vole	MILO
Microtus montanus	Montane vole	MIMO
Lagurus curtatus	Sagebrush vole	LACU
ERETHIZONTIDAE (Porcupines)		
Erethizon dorsatum	Porcupine	
CANIDAE (Coyote, wolves and foxes)		
Canis latrans	Coyote	
MUSTELIDAE (Mustelids, weasels, skunks)		
Mustela erminea	Ermine	
Mustela frenata	Long-tailed weasel	
Taxidea taxus	Badger	
FELIDAE (Cats)		
Lynx rufus	Bobcat	
EQUIDAE (Horses)***		
Equus caballus	Feral horse	
CERVIDAE (Deer and elk)****		
Cervus canadensis	Elk	
Odocoileus hemionus	Mule deer	

*The following authority is used for small mammal nomenclature:

Hall, E.R. and K.R.Kelson. 1959. The mammals of North America. Ronald Press Company, New York. 1162 pages.

**used on small mammal live trapping data sheets

***The following authority is used for feral horse nomenclature:

Blair, W.F., A.P. Blair, P. Brodkorb, F.R. Cagle and G.A. Moore. 1968. Vertebrates of the United States, second edition. McGraw-Hill Book Company. New York. 616 pages

****The following authority is used for large mammal (except feral horse) nomemclature:

Lechleitner, R.R. 1969. Wild mammals of Colorado. Pruett Publishing Company, Boulder, Colorado. 254 pages.

Table 2.3-42 Shannon-Weiner diversity indices (H'), unbiased estimates of H' (E(H')), variance of H' (var (H')), maximum expected value of H' (H'(max)), and equitability (J) for all small mammal grids during sample period 1, October 19-24, 1974, for REGIP

Grid Designation	Vegetation Type	H'	E(H')	var(H')	H'(max)	J
1	Bottomland meadow	0.349	0.321	0.024	0.693	0.503
2	Sagebrush	0.687	0.659	0.001	0.693	0.991
3	Rabbitbrush	0.745	0.720	0.008	1.099	0.678
4	Pinyon-juniper/mixed brush	0.980	0.955	0.004	1.099	0.892
5	Mixed brush	0.665	0.650	0.002	0.693	0.960
6	Pinyon-juniper/sagebrush	0.673	0.656	0.001	0.693	0.971
7	Upland meadow	0.349	0.293	0.047	0.693	0.503
A	Greasewood-sagebrush	0.950	0.944	0.001	1.099	0.865
B	Pinyon-juniper (south slope)	1.182	1.164	0.005	1.609	0.735
C	Pinyon-juniper (north slope)	1.231	1.201	0.007	1.946	0.633
D	Sagebrush	0.981	0.956	0.007	1.792	0.547
E	Mixed brush	0.857	0.830	0.011	1.386	0.618
F	Douglas fir	0.398	0.376	0.018	0.693	0.575
G	Aspen	1.028	0.989	0.011	1.386	0.742

Table 2.3-43 Shannon-Weiner diversity indices (H'), unbiased estimates of H' (E(H')), variance of H' (var (H')), maximum expected value of H' (H'(max)), and equitability (J) for all small mammal grids during sample period 2, December 7-12, 1974, for RBOSP

Grid Designation	Vegetation Type	H'	E(H')	var(H')	H'(max)	J
1	Lowland meadow	0.803	0.761	0.021	1.099	0.731
2	Sagebrush	0.000	0.000	0.000	0.000	-
3	Rabbitbrush	0.440	0.420	0.015	0.693	0.634
4	Pinyon-juniper/mixed brush	0.000	0.000	0.000	0.000	-
5	Mixed brush	0.693	0.443	0.000	0.693	1.000
6	Pinyon-juniper/sagebrush	0.000	0.000	0.000	0.000	-
7	Upland meadow	0.000	-	-	-	-
A	Greasewood-sagebrush	0.773	0.726	0.019	1.099	0.704
B	Pinyon-juniper (south slope)	0.393	0.359	0.027	0.693	0.567
C	Pinyon-juniper (north slope)	0.693	0.443	0.000	0.693	1.000
D	Sagebrush	0.000	0.000	0.000	0.000	-
E	Mixed brush	0.000	-	-	-	-
F	Douglas fir	0.271	0.233	0.034	0.693	0.391
H	Aspen	0.491	0.475	0.019	0.693	0.709

- Insufficient data for computation

Table 2.3-44 Shannon-Weiner diversity indices (H'), unbiased estimates of H' (E(H')), variance of H' (var (H')), maximum expected value of H' (H'(max)), and equitability (J) for all small mammal grids during sample period 3, May 18-26, 1975, for RBOSP

Grid Designation	Vegetation Type	H'	E(H')	var(H')	H'(max)	J
1	Bottomland meadow	0.908	0.817	0.033	1.099	0.826
2	Sagebrush	0.967	0.921	0.010	1.099	0.880
3	Rabbitbrush	0.894	0.877	0.004	1.099	0.814
4	Pinyon-juniper/mixed brush	1.001	0.961	0.012	1.386	0.722
5	Mixed brush	0.642	0.629	0.003	0.693	0.927
6	Pinyon-juniper/sagebrush	0.935	0.893	0.015	1.386	0.675
7	Upland meadow	0.500	0.467	0.020	0.693	0.722
A	Greasewood-sagebrush	0.849	0.837	0.003	1.099	0.773
B	Pinyon-juniper (south slope)	1.440	1.413	0.006	1.792	0.804
C	Pinyon-juniper (north slope)	1.331	1.298	0.007	1.609	0.827
D	Sagebrush	0.998	0.975	0.007	1.386	0.720
E	Mixed brush	1.046	1.023	0.009	1.609	0.650
F	Douglas fir	0.645	0.626	0.004	0.693	0.931
G	Aspen	0.810	0.779	0.007	1.099	0.737

Table 2.3-45 Shannon-Weiner diversity indices (H'), unbiased estimates of H' (E(H')), variance of H' (var (H')), maximum expected value of H' (H'(max)), and equitability (J) for all small mammal grids during sample period 4, July 25-30, 1975, for NBOSP

Grid Designation	Vegetation Type	H'	E(H')	var(H')	H'(max)	J
1	Bottomland meadow	0.500	0.400	0.061	0.693	0.722
2	Sagebrush	1.047	1.003	0.014	1.386	0.755
3	Rabbitbrush	0.619	0.571	0.034	1.099	0.563
4	Pinyon-juniper/mixed brush	1.038	0.992	0.006	1.099	0.945
5	Mixed brush	0.683	0.647	0.001	0.693	0.985
6	Pinyon-juniper/sagebrush	1.133	1.073	0.014	1.386	0.817
7	Upland meadow	0.520	0.484	0.020	0.693	0.750
A	Greasewood-sagebrush	1.040	1.022	0.004	1.386	0.750
B	Pinyon-juniper (south slope)	1.634	1.606	0.004	1.946	0.839
C	Pinyon-juniper (north slope)	1.477	1.452	0.004	1.792	0.825
D	Sagebrush	1.165	1.136	0.003	1.386	0.840
E	Mixed brush	1.137	1.110	0.007	1.609	0.706
F	Douglas fir	0.693	0.670	0.000	0.693	1.000
G	Aspen	0.613	0.563	0.033	1.099	0.558

Table 2.3-46 Shannon-Wiener diversity indices (H'), unbiased estimates of H' (H'(adj)), variance of H' (var(H')), primary production of H' (H'(max)), and equitability (J) for small mammal communities during the period , b. 31-Oct. 4, 1979, [illegible]

Grid location	[illegible]	H'	var(H')	H'(adj)	H'(max)	J
1	[illegible]	0.000	0.000	0.000	0.00	-
2	[illegible]brush	0.713	0.[illegible]	0.001	1.099	0.[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]/mixed brush	0.971	0.[illegible]	0.002	1.[illegible]	0.[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	Pinyon-juni[illegible]/sagebrush	0.29[illegible]	0.[illegible]	0.019	0.69[illegible]	0.[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	Greasewood-sagebrush	0.979	0.[illegible]	0.000	1.609	0.[illegible]
9	Pinyon-juniper (south slope)	1.295	1.[illegible]	0.009	1.9[illegible]	0.[illegible]
[illegible]	[illegible] (north slope)	1.314	1.[illegible]	0.008	1.[illegible]	0.[illegible]
[illegible]	[illegible]	0.791	0.[illegible]	0.[illegible]	1.[illegible]	[illegible]
[illegible]	[illegible]	0.76[illegible]	[illegible]	0.007	[illegible]	0.[illegible]
[illegible]	[illegible]	1.1[illegible]7	1.[illegible]	0.[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1.2[illegible]	1.[illegible]	0.007	[illegible]	[illegible]

- Insufficient data for computation

Table 2.3-53 Summary of trapping results for Spermophilus tridecemlineatus (thirteen-lined gnd. sqr.) on all small mammal grids during sample period 3, May 18-24, 1975, for NBCSP

Grid	Vegetation Type	% Individuals Captured Per 100 Trap Nights	Relative Abundance	Proportion Captured Adult M	Adult F	Juvenile M	Juvenile F
1	Bottomland meadow	0.00	0.0	0.00	0.00	0.00	0.00
2	Sagebrush	1.33	100.0	0.67	0.67	0.00	0.00
3	Rabbitbrush	0.00	0.0	0.00	0.00	0.00	0.00
4	Pinyon-juniper/mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
5	Mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
6	Canyon-juniper/sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
7	Upland meadow	0.00	0.0	0.00	0.00	0.00	0.00
A	Juniper-snow-sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
B	Pinyon-juniper (south slope)	0.00	0.0	0.00	0.00	0.00	0.00
C	Pinyon-juniper (north slope)	0.00	0.0	0.00	0.00	0.00	0.00
D	Sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
E	Mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
F	Douglas fir	0.00	0.0	0.00	0.00	0.00	0.00
G	Aspen	0.00	0.0	0.00	0.00	0.00	0.00

1 trap night = one trap baited and set for 24 hours
(% of individuals of each species / % of individuals of all species) . 100

2.3-55

Table 2.3-56 Average live weights (gm) for adult Peromyscus bridgesi (thirteen-lined grd. sqr.) on all small mammal grids during sample period 4, July 17-30, 1975, for [illegible]

Grid	Vegetation type	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	0		0		0	
2	[illegible]	1	70.0	1	91.0	2	80.5 6.0
3	[illegible]	0		0		0	
4	[illegible]	0		0		0	
5	[illegible]	0		0		0	
6	Pinyon-juniper/sc [illegible]	0		0		0	
7	[illegible]	0		0		0	
8	[illegible]	0		0		0	
9	Pinyon-juniper (north slope)	0		0		0	
10	Pinyon-juniper (north slope)	0		0		0	
11	[illegible]	0		0		0	
12	[illegible]	0		0		0	
13	[illegible]	0		0		0	
14	[illegible]	0		0		0	
	[illegible]	1	70.0	1	91.0	2	80.5 6.0

Table 2.3-57 Average live weights (gm) for adult [illegible] on all small mammal grids during [illegible] for [illegible]

Grid	Association type	[illegible]		[illegible]		[illegible]	
		n	Average	n	Average	n	Average
1	[illegible]	0		0		0	
2	[illegible]	1	72.0	0	[illegible]	3	64.3
3	[illegible]	0		0		0	
4	[illegible]	0		0		0	
5	[illegible]	0		0		0	
6	[illegible]	0		0		0	
7	[illegible]	0		0		0	
8	[illegible]	0		0		0	
9	[illegible]	0		0		0	
10	[illegible]	0		0		0	
11	[illegible]	0		0		0	
12	[illegible]	0		0		0	
13	[illegible]	0		0		0	
14	[illegible]	0		0		0	
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	3	64.3

Table 2.3-59 Summary of trapping results for Spermophilus lateralis (golden-mantled grd. sqr.) on all small mammal grids during sample period 3, May 18-26, 1975, for R2082

Grid	Vegetation type	# Individuals Captured Per 100 Trap Nights	Relative Abundance	Proportion Captured Adults		Juveniles	
				M	F	M	F
1	Bottomland meadow	0.00	0.0	0.00	0.00	0.00	0.00
2	Sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
3	Rabbitbrush	0.16	3[illegible].3	0.25	0.25	0.50	0.00
4	Pinyon-juniper/mixed brush	0.61	[illegible].1	1.00	0.00	0.00	0.00
5	Mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
6	Pinyon-juniper/sagebrush	0.61	9.8	1.00	1.00	0.00	0.00
7	Upland meadow	0.00	0.0	0.00	0.00	0.00	0.00
A	[illegible]-sagebrush	0.16	3.1	.67	0.33	0.00	0.00
B	Pinyon-juniper (south slope)	0.76	10.9	1.00	0.00	0.00	0.00
C	Pinyon-juniper (north slope)	1.05	14.[illegible]	.43	0.57	0.00	0.00
D	[illegible]brush	0.71	17.[illegible]	.[illegible]	[illegible].[illegible]	0.00	0.[illegible]
E	[illegible]d brush	0.56	9.1	1.00	0.00	0.00	0.00
F	Douglas fir	0.00	0.0	0.00	0.00	0.00	0.00
G	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00

1 trap night = one trap baited and set for 24 hours
2/ ([illegible] individuals of each gender / [illegible] of individuals of all [illegible])

Table 2.3-59 Summary of burrowing results for Perognathus longimembris (pocket mice) on mesquite hummock habitat during early dry season, May 16-26, 1975, Los Mochis

Trial	Description	Individuals per 1 hour test	Percent relative abundance	Percent Perognathus longimembris			
				0	1	2	3
1	Perognathus mendax	1.00	4.8	0.00	0.00	0.00	0.00
2a	P. longimembris	1.00	4.8	0.00	0.00	0.00	0.00
2b	P. longimembris	1.00	4.8	0.00	0.00	0.00	0.00
3	P. longimembris (north slope)	1.33	6.4	0.00	1.00	0.00	0.00
4	P. longimembris	0.33	1.6	0.00	0.00	0.00	0.00
5	P. longimembris (north slope)	2.33	11.1	0.00	1.00	0.00	0.00
6	Perognathus flavus	2.00	9.5	0.00	0.00	0.00	0.00
7	P. longimembris	0.67	3.2	0.00	0.00	0.00	0.00
8	P. longimembris (south slope)	0.75	10.0	0.00	0.00	0.00	0.00
9	P. longimembris (north slope)	1.25	16.7	0.00	0.00	0.00	0.00
10	P. flavus	0.75	10.0	0.00	0.00	0.00	0.00
11	P. longimembris	0.67	3.2	0.00	0.00	0.00	0.00
12	P. longimembris	0.33	1.6	0.00	0.00	0.00	0.00
13	P. longimembris	0.67	3.2	0.00	0.00	0.00	0.00

Table 2.3-60 Summary of trapping results for Peromyscus leucopus (white-footed mouse) on all small mammal grids during the pre-operational, July 28-30, 1975, for LOCA

Grid	Vegetation type	Individuals (a) per 100 trap nights	Relative abundance	Age Class Captured		Sex Ratio	
				Juv.	Ad.	Juv.	Ad.
1	Bottomland meadow	0.00	0.0	0.00	0.00	0.00	0.00
2	Dry brush	0.00	0.0	0.00	0.00	0.00	0.00
3	Dry thicket	1.00	2.5	0.00	0.50	0.00	0.00
4	Improved pasture/mixed brush	3.00	11.3	1.50	0.00	0.25	0.25
5	Brush	0.00	0.0	0.00	0.00	0.00	0.00
6	Improved pasture/brush	2.00	10.0	0.00	0.00	0.00	0.00
7	Brush	0.00	0.0	0.00	0.00	0.00	0.00
8	Improved pasture/brush	0.00	0.0	0.00	0.00	0.00	0.00
9	Improved pasture (south plot)	3.01	14.0	0.00	0.00	0.00	0.00
10	Improved pasture (north plot)	1.00	11.1	0.00	0.00	0.00	0.00
11	Brush	0.00	0.0	0.00	0.00	0.00	0.00
12	Old field brush	1.00	5.0	0.00	0.00	0.00	0.00
13	Brush	0.00	0.0	0.00	0.00	0.00	0.00
14	Brush	0.00	0.0	0.00	0.00	0.00	0.00

(a) Trap nights = one trap unit set out for 24 hours
(b) Relative abundance = number of each species / total number of all species) x 100

Table 2.3-61 [illegible] of trapping results for [illegible] (small mammal [illegible] [illegible], Nov. 21-Dec. 4, 1975, [illegible])

[illegible]	[illegible]	Individuals per 100 trap nights	Diversity	Dominance (percent)	
				[illegible]	[illegible]
1	[illegible]	.00	.0	0.00	.00
2	[illegible]	.00	.0	.00	0.00
3	[illegible]	.00	.0	0.00	0.00
4	[illegible] - [illegible]/mixed brush	.00	.0	.00	0.00
5	[illegible]	.00	.0	0.00	0.00
6	[illegible] - [illegible]	.00	.0	0.00	0.00
7	[illegible]	.00	.0	0.00	0.00
8	[illegible] - [illegible]	.00	.0	0.00	0.00
9	[illegible] - [illegible] (south slope)	.00	.0	0.00	0.00
10	[illegible] - [illegible] (north slope)	.00	.0	0.00	0.00
11	[illegible]	00.00	.0	0.00	0.00
12	[illegible]	.00	.0	0.00	0.00
13	[illegible]	.00	.0	0.00	0.00
14	[illegible]	.00	.0	0.00	0.00
15	[illegible]	00.00	.0	0.00	0.00

1 [illegible] = one [illegible] and not for [illegible]
([illegible] of each species / [illegible] of individuals of all species)

Table 2.3-62 Jolly-Seber population density estimates for [illegible]

i									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11	.000								
12	.000								
13	.000								
14	.000								
15	.000								
16	.000								
17	.000								
18	.000								
19	.000								
20	.000								
21									
22	.000								
23									
24									
25									

[illegible] insufficient data, omit computation

- [illegible] subscript of population size are not omitted [illegible] (two mi yrs (-10) due to [illegible]

2.3-63

Table 2.3-64 Definition of population parameters measured by the Jolly-Seber method and corresponding notations for RBOSP

Notation	Definition
i	Trap night 1-5 -Sample period 1, Oct. 19-24, 1974 6-10 -Sample period 2, Dec. 7-12, 1974 11-15 -Sample period 3, May 18-26, 1975 16-20 -Sample period 4, July 25-30, 1975 21-25 -Sample period 5, Sept. 31- Oct. 4, 1975
a	Proportion of marked animals in sample i
p	Probability an animal alive at time i is caught at time i
M	Estimate of the size of the marked population just before the i^{th} sample
N	Estimate of the total population size just before the i^{th} sample
#/ha	Absolute density (numbers per hectare); determined by (N x 10,000)/(effective trapping area)
var(N(N))	Error of estimation of N
B	Number of new animals joining the population in the interval from time i to time i+1 which are still alive and in the population at time i+1
var(B)	The variance associated with estimating B
O	Probability an animal alive at time i survives to time i+1
var(O)	The variance associated with estimating O

Table 2.3-65 [illegible] recommended range length (m) for adult [illegible] (Sc [illegible]-mounted mf. SCA.) or small [illegible] Section 9, July 12-13, 1977, for [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible] (south slope)	0		0		0	
[illegible]	[illegible] (north slope)	1	146.3	0		1	146.3
[illegible]	[illegible]	0		0		0	
[illegible]	[illegible]	0		0		0	
[illegible]	[illegible]	0		0		0	
[illegible]	[illegible]	0		0		0	
[illegible]	[illegible]	1	146.3	0		1	146.3

Table 2.3-66 Average extended ram length (m) for adult Dromomhilus latevalis (golden-mantled grd. squr.) on small mammal grids during sample period 4, July 25-30, 1975, for NPR-A

Grid	Vegetation type	MALE n	MALE Average	MALE Std. Error	FEMALE n	FEMALE Average	FEMALE Std. Error	ALL ADULTS n	ALL ADULTS Average	ALL ADULTS Std. Error
A	[illegible] wood-[illegible] bush	0			0			0		
B	[illegible]-[illegible] (south slope)	2	116.1	19.1	0			2	116.1	19.1
C	[illegible]-[illegible] (north slope)	1	230.0		1	116.0		2	173.5	42.5
D	[illegible]	0			0			0		
E	[illegible]	0			0			0		
F	[illegible]	0			0			0		
G	[illegible]	0			0			0		
TOTAL--ALL GRIDS		3	171.7	58.3	1	116.0		4	157.5	29.7

2.3-67

Table 2.3-68 Average size weights (gm) for adult Bromochilus latemolis (golden-mantled emd. spp.) on all grill unmod. plus dewin. serp. grids, July 15-30, 1975, for [illegible]

Grid	[illegible]	[illegible]			[illegible]			[illegible]		
		n	mean	s.e. mean	n	mean	s.e. mean	n	mean	s.e. mean
1	[illegible]	[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	1	[illegible]		[illegible]			1	105.0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]			[illegible]			[illegible]		
3	[illegible]	3	165.3	11.3	1	151.0		4	161.7	13.4
7	[illegible]	[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

2.3-69

Table 2.3-70 Summary of trapping results for Julesburg minimum (least chipmunk) on all small mammal grids during Year 01 Period 1, October 19-24, 1974, for [illegible]

Grid	Location type	Individuals per 100 trap nights	Relative Abundance	Proportion Captured	
				Adult	Juvenile
1	[illegible]	0.00	[illegible]	[illegible]	[illegible]
2	[illegible]	3.06	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1 Juvenile = any individual not yet weaned and not yet 50 grams

2 (No. of individuals of each species / No. of individuals of all species) 100

Table 2.3-71 Summary of beam intercept results for western white-tailed deer (*Odocoileus virginianus*) on all small mammal grid trapping sites, May 1 - 10, 1977, [illegible]

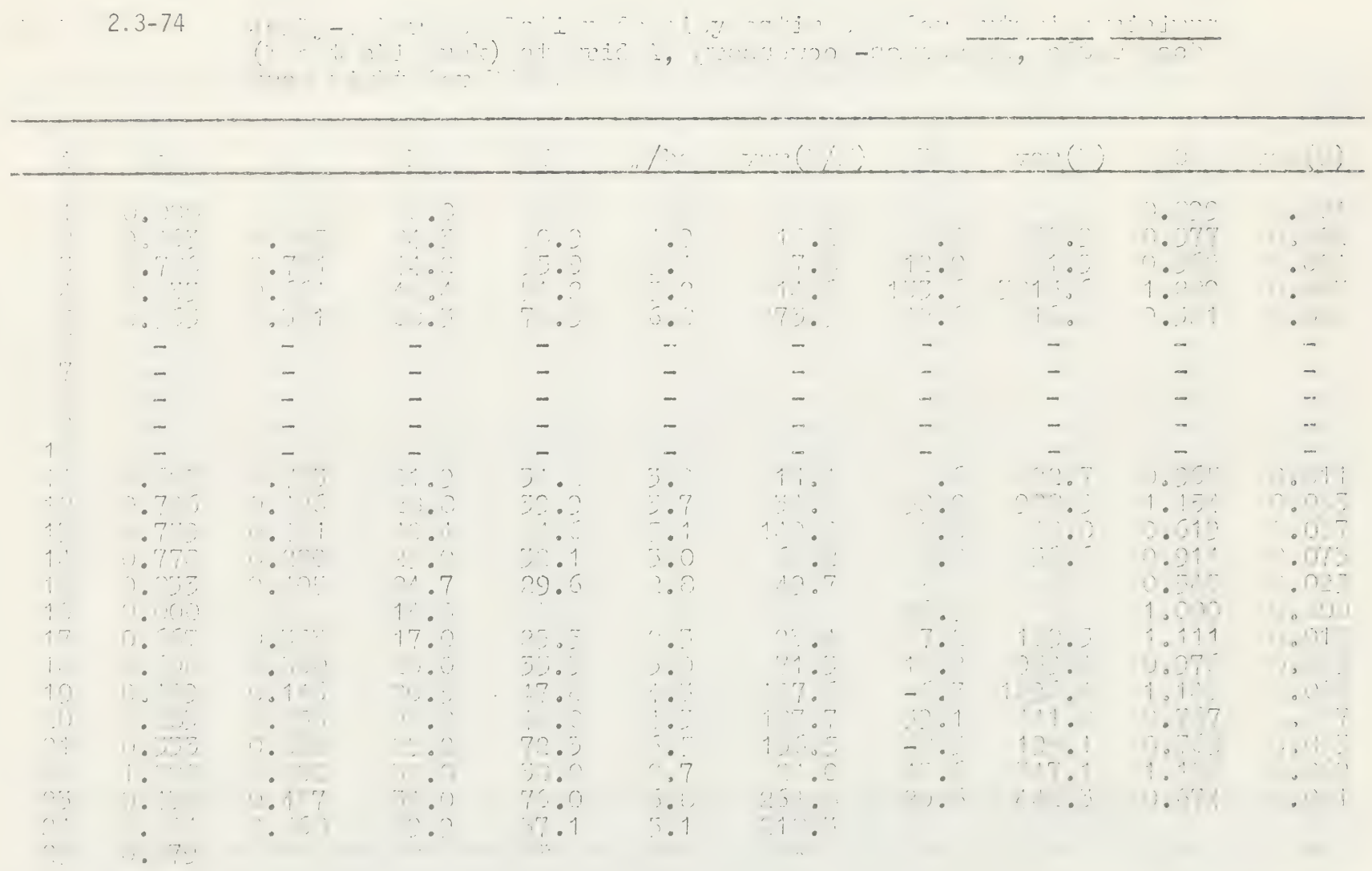
Grid	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(1) [illegible]

Table 2.3-72 Summary of sampling results for zooplankton minimum (1 mm. all mesh) on all small mammal grids during pre-[illegible], July [illegible]-30, 1975, for [illegible]

Grid	Station or [illegible]	Individuals per [illegible]	Diversity [illegible]	Dominance [illegible]	Dominance Returned [illegible]		Diversity [illegible]	
1	[illegible]	2.00	0.	1.00	1.00	0.00	0.00	0.00
[illegible]	[illegible]	1.11	11.	.50	1.00	0.10	0.00	
2	[illegible]	1.01	2.	.00	1.00	0.00	0.00	
[illegible]	[illegible]	.50	1.	.17	0.25	1.00	0.1	
[illegible]	[illegible]	2.	1.	.17	.25	0.17	0.17	
[illegible]	[illegible]	1.	1.	.17	.25	0.17	0.17	
[illegible]	[illegible]	1.0	1.	.17	0.33	0.00	0.00	
[illegible]	[illegible]	.84	1.	.11	0.29	0.04	0.07	
[illegible]	[illegible]	.50	2.	.17	.25	0.04	0.01	
[illegible]	[illegible]	.11	1.	.17	0.33	0.00	0.00	
[illegible]	[illegible]	.11	1.	.17	0.17	0.00	0.07	
[illegible]	[illegible]	.11	1.	.17	0.17	0.00	0.00	
[illegible]	[illegible]	.50	1.	.00	1.00	0.00	0.00	

1/ [illegible] 2/ [illegible] of individuals of all species) [illegible]



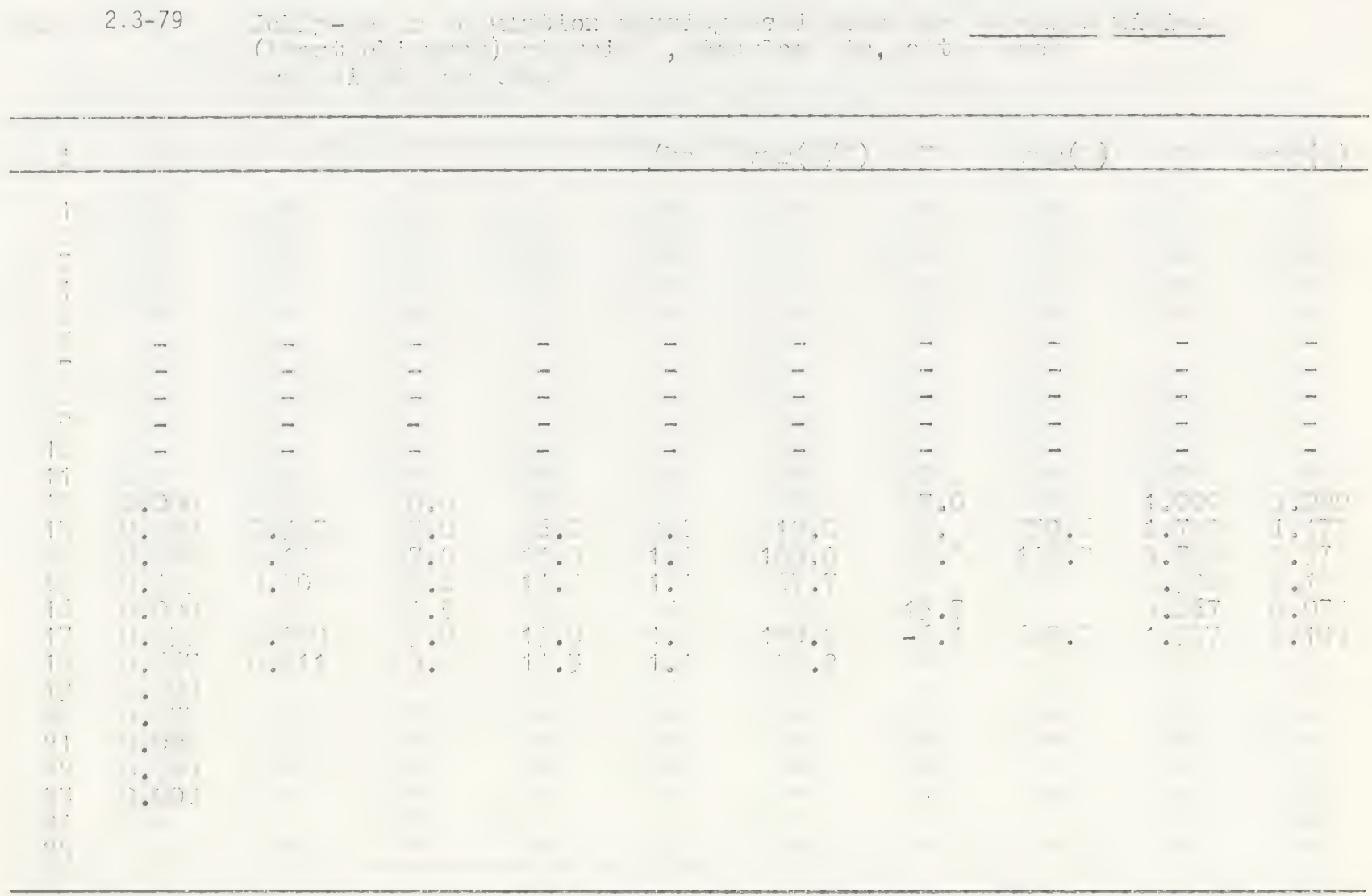
2.3-75

Table 2.3-76 [illegible] Bivalvia) at mid-, inter- and (north aloe), Attum Reef

1	1.000								0.714	0.020
	0.000	0.000		16.7	1.1		11.1		1.100	.007
	.111	.111							.715	0.011
	1.00	1.111		20.0	1.9				1.720	0.021
	.750	.017								0.015
	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	.7									
	.7									0.116
	1.000									
	.167									
	.313									
	.1.2	0.111		21.0	7.7					
	.033									

- [illegible] insufficient to permit comparison
- [illegible] calculation [illegible]
(1) [illegible] (-1) due to reduction in sample [illegible]

2.3-78



2.3-80

Table 2.3-81

Table 2.3-82 Average extended range length (m) for adult Eutamias minimus (least chipmunk) on small mammal grids during sample periods 3, May 16-26, 1975, for [illegible]

Grid	Vegetation type	MALE n	MALE Average	MALE Std. Error	FEMALE n	FEMALE Average	FEMALE Std. Error	ALL ADULTS n	ALL ADULTS Average	ALL ADULTS Std. Error
A	[illegible]-sagebrush	7	113.5	12.7	2	91.1	26.0	9	110.4	12.0
B	Pinyon-juniper (south slope)	5	152.1	30.5	4	103.5	6.6	9	119.4	14.3
C	Pinyon-juniper (north slope)	0			2	120.6	2.5	2	120.6	2.5
D	[illegible]sagebrush	11	111.6	10.0	2	110.3	1.5	13	110.6	10.6
E	[illegible] brush	6	151.1	26.5	1	120.9	[illegible]	7	142.0	21.0
I	Aspen brush	1	84.5		0			1	84.5	
J	Douglas fir	0			1	42.7		1	43.7	
G	Aspen									
	[illegible]	30	129.3	[illegible]	12	110.[illegible]	[illegible]	[illegible]	111.0	[illegible]

Table 2.3-83 Average extended range length (m) for adult *Eutamias minimus* (least chipmunk) on small mammal grids during sample period 4, July 25-30, 1977, for MCGP

Grid	Description	MALE n	MALE Average	MALE Std. Error	FEMALE n	FEMALE Average	FEMALE Std. Error	ALL ADULTS n	ALL ADULTS Average	ALL ADULTS Std. Error
A	Cercocarpus-sagebrush	1	112.5		1	[illegible]		2	137.5	12.5
B	[illegible]-juniper (south slope)	1	156.7		1	[illegible]		2	[illegible]	16.7
C	[illegible]-juniper (north slope)	0			0			0		
D	[illegible]	0			0			0		
E	[illegible]-mesic	0			0			0		
F	[illegible] fir	1	130.7		1	[illegible]		2	85.1	17.3
G	[illegible]	0			0			0		
	MEAN--ALL GRIDS	3	126.6	7.3	3	130.1	25.9	4	113.6	14.8

Table 2.3-84 Average extended range length (m) for adult Lutjanus vitta (2 year chinook) on small normal wide during [illegible], Sept. 31-Oct. 4, 1975, for 2 OSV

Vessel	Location type	ALL			MALE			ALL ADULTS		
		n	Average	Std. Error	n	Average	Std. Error	n	Average	Std. Error
A	[illegible]	1	9.5		2	139.7	30.5	3	129.6	27.4
B	[illegible] (south slope)	5	145.4	32.7	3	145.1	1.	5	114.5	36.7
C	[illegible] (north slope)	0			1	111.0		1	111.0	
D	[illegible]	0			0			0		
E	[illegible]	1	97.5		0			1	97.5	
F	[illegible]	0			0			0		
G	[illegible]	0			0			0		
[illegible]		1	129.0	[illegible]	1	129.0	[illegible]	13	141.0	15.5

2.3-85

Table 2.3-86 Average live weights (gm) for adult Eutamias minimus (Yellow chipmunk) on all small mammal grids during each period, July 25-30, 1975, [illegible]

Grid	Association type	MALE n	MALE Average	MALE Std. Error	FEMALE n	FEMALE Average	FEMALE Std. Error	ALL ADULTS n	ALL ADULTS Average	ALL ADULTS Std. Error
1	[illegible]	0			0			0		
2	[illegible]	10	31.3	0.9	7	31.9	1.0	17	33.2	0.6
3	[illegible]	0			2	40.0	3.0	2	43.0	3.0
4	[illegible]	2	30.5	0.5	6	31.	1.2	8	24.3	1.2
5	[illegible]	1	26.0		3	30.0	2.1	4	30.2	2.6
6	[illegible]	2	30.5	0.5	2	[illegible]	0.5	4	30.5	0.5
7	[illegible]	1	31.0	1.0	1	32.0		2	32.7	0.7
8	[illegible]	17	33.2	0.6	6	37.9	1.0	23	34.0	0.7
9	[illegible] (south slope)	16	31.1	1.0	16	[illegible]	1.2	32	32.4	0.9
9	[illegible] (north slope)	6	30.3	0.7	11	33.3	1.1	17	31.2	1.0
10	[illegible]	7	28.0	1.6	7	31.0	1.0	14	30.0	1.0
11	[illegible]	7	30.4	1.2	12	[illegible]	1.0	20	31.0	1.0
12	[illegible]	4	30.0	0.2	2	[illegible]	[illegible]	1	[illegible]	2.0
13	[illegible]	0			7	[illegible]	1.0	9	35.0	1.0
	TOTAL--ALL GRIDS	71	31.9	0.4	89	[illegible]	1.1	16	[illegible]	0.4

2.3-87

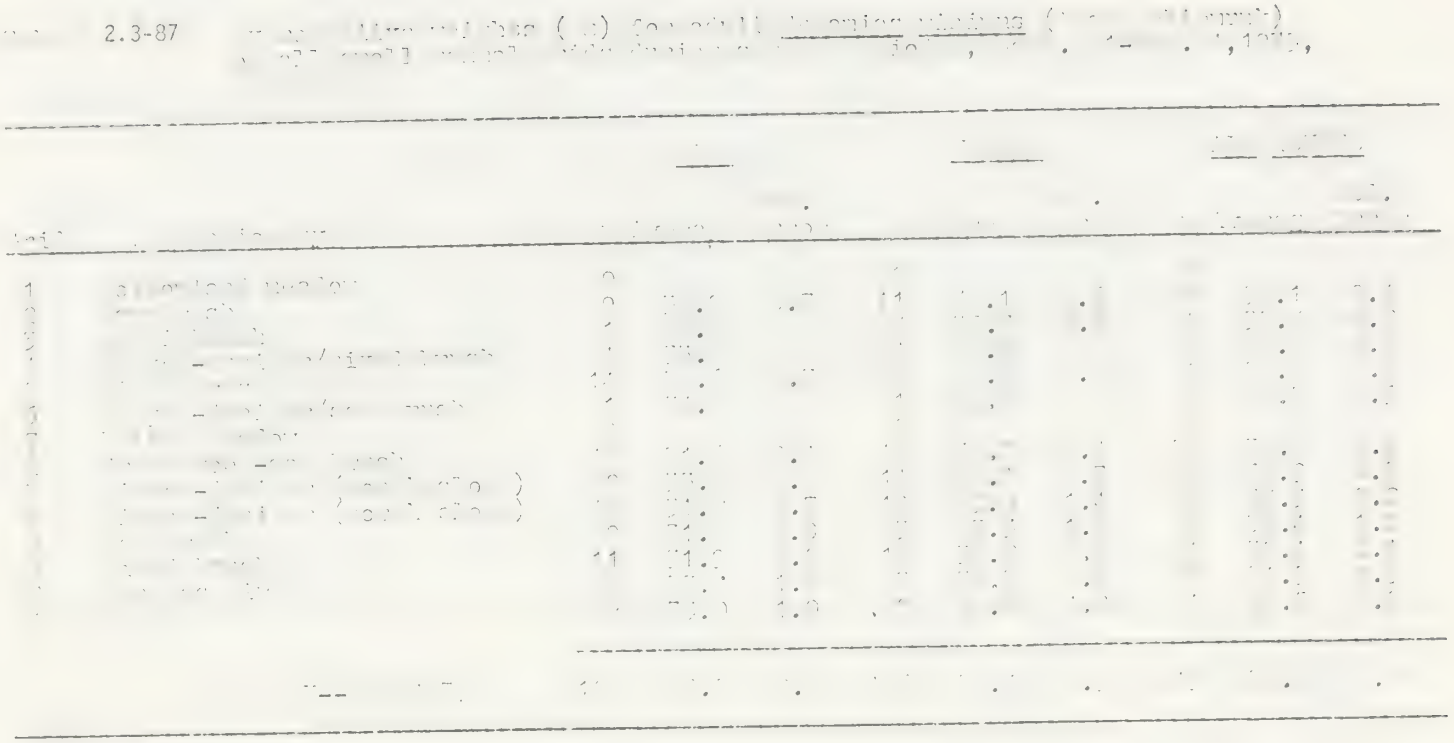


Table 2.3-88 Percent diet composition for least chipmunks (Eutamias minimus) collected from major vegetation types during December, 1974 and May, July, and October, 1975 for RBOSP

Habitat/Sampling period		Sample Size		Food categroies (% composition) Seed	Succulent	Invertebrates	Vertebrates
Greasewood-Sagebrush							
December, 1974		0					
May, 1975		3		57	43	0	1
July, 1975		1		98	2	0	0
October, 1975		2		83	17	0	0
	Total	6	Average	73	27	0	0
Pinyon-juniper (south slope)							
December, 1974		1		98	0	0	2
May, 1975		0					
July, 1975		1		100	0	0	0
October, 1975		0					
	Total	2	Average	99	0	0	1
Pinyon-juniper (north slope)							
No individuals captured							
Sagebrush							
December, 1974		0					
May, 1975		4		37	59	4	0
July, 1975		0					
October, 1975		0					
	Total	4	Average	37	59	4	0
Mixed Brush							
December, 1974		0					
May, 1975		3		57	43	0	1
July, 1975		1		98	2	0	0
October, 1975		2		83	17	0	0
	Total	6	Average	72	28	0	0
Aspen							
No individuals captured							

Table 2.3-89 Average percent diet composition for deer mice (*Peromyscus maniculatus*), least chipmunks (*Eutamias minimus*), and long-tailed voles (*Microtus longicaudus*) collected from major vegetation types during December, 1974 and May, July, and October, 1975 for RBOSP

Species/Sampling period	Sample Size		Food categories (average % composition) Seed	Succulent	Invertebrates	Vertebrates
Peromyscus maniculatus (deer mouse)						
December, 1974	15		82	13	3	3
May, 1975	19		64	26	9	1
July, 1975	15		87	10	2	1
October, 1975	6		60	38	0	2
	Total 55	Average	75	19	4	2
Eutamias minimus (least chipmunk)						
December, 1974	1		98	0	0	2
May, 1975	10		49	49	2	0
July, 1975	3		99	1	0	0
October, 1975	4		83	17	0	0
	Total 18	Average	68	31	1	0
Microtus longicaudus (long-tailed vole)						
December, 1974	0					
May, 1975	4		96	3	1	0
July, 1975	5		6	94	0	0
October, 1975	4		12	88	0	0
	Total 13	Average	36	64	0	0

Table 2.3-90 Reproductive status* of female deer mice (Peromyscus maniculatus), least chipmunks (Eutamias minimus) and long-tailed voles (Microtus longicaudus) collected in major vegetation types during May, July and October, 1975 for RBOSP

Species/Habitat type		May 1975		July 1975		October 1975	
		Active	Inactive	Active	Inactive	Active	Inactive
Peromyscus maniculatus (deer mouse)							
Greasewood-sagebrush		3	1	5	0	3	0
Pinyon-juniper (south slope)		3	2	1	0	0	0
Pinyon-juniper (north slope)		1	0	1	0	0	0
Mixed brush		0	0	3	0	1	2
Sagebrush		2	1	0	0	0	2
	Total	9	4	10	0	4	4
Eutamias minimus (least chipmunk)							
Greasewood-sagebrush		1	4	0	0	0	5
Pinyon-juniper (south slope)		3	0	1	0	0	0
Pinyon-juniper (north slope)		0	0	0	0	0	0
Mixed brush		1	3	0	1	0	1
Sagebrush		1	1	0	0	0	0
	Total	6	8	1	1	0	6
Microtus longicaudus (long-tailed vole)							
Aspen		0	3	3	0	2	2

* A female that contained embryos or recent placental scars was considered to be reproductively active.

Table 2.3-91 Average number of embryos* found in reproductively active deer mice (Peromyscus maniculatus) least chipmunks (Eutamias minimus), and long-tailed voles (Microtus longicaudus) collected from major vegetation types during May, July and October, 1975 for RBOSP

	May 1975		July 1975		October 1975	
Species/Habitat type	Sample size	Average	Sample Size	Average	Sample Size	Average
Peromyscus maniculatus (deer mouse)						
Greasewood-sagebrush	3	5.6	6	6.0	3	6.7
Pinyon-juniper (south slope)	3	5.3	1	6.0	0	
Pinyon-juniper (north slope)	1	6.0	1	6.0	0	
Mixed brush	0		3	4.7	1	6.0
Sagebrush	2	4.5	0		0	
Summary	9	5.3	11	5.6	4	6.5
Eutamias minimus (least chipmunk)						
Greasewood-sagebrush	1	6.0	0		0	
Pinyon-juniper (south slope)	3	7.0	1	7.0	0	
Pinyon-juniper (north slope)	0		0		0	
Mixed brush	1	7.0	0		0	
Sagebrush	1	4.0	0		0	
Summary	6	6.3	1	7.0	0	
Microtus longicaudus (long-tailed vole)						
Aspen	0		3	5.0	2	4.0

* Both number of embryos and number of recent placental scars are used in the analysis.

Table 2.3-92 Summary of trapping results for Eutamias quadrivittatus (Colorado chipmunk) on all small mammal trapping webs during Phase 1, October 19-24, 1974, for LOF

Trap	Location type	Individuals captured per 100 trap nights	Relative abundance	Location Summary	
				Adult (#/%)	Juvenile (#/%)
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1 [illegible]
([illegible] / [illegible] x 100)

2.3-93

Table 2.3-94 Summary of trapping results for Eutamias quadrivittatus (Colorado chipmunk) on all small mammal grids during sample period 4, July 25-30, 1975, for PRCC*

Grid	Vegetation type	# Individuals Captured Per 100 Trap Nights	** Relative Abundance	Proportion Captured Adult M	Adult F	Juvenile M	Juvenile F
1	Cottonland meadow	0.00	0.0	0.00	0.00	0.00	0.00
2	Sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
3	Rabbitbrush	0.00	0.0	0.00	0.00	0.00	0.00
4	Mayor-juniper/mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
5	Mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
6	Pinyon-juniper/sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
7	Wet and meadow	0.00	0.0	0.00	0.00	0.00	0.00
8	Deciduous-sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
9	Pinyon-juniper (south slope)	1.00	50.0	0.50	0.50	0.00	0.00
10	Pinyon-juniper (north slope)	1.00	50.0	0.50	0.50	0.00	0.00
11	Weedy area	0.00	0.0	0.00	0.00	0.00	0.00
12	Mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
13	Low pine fir	0.00	0.0	0.00	0.00	0.00	0.00
14	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00

* 1 trap night = one trap baited and set for 24 hours

** (# of individuals of each species / # of individuals of all species) X 100

Table 2.3-95 Summary of trapping results for Eutamias quadrivittatus (Colorado chipmunk) on all small mammal grids during each period, Sept. 31-Oct. 4, 1975, for [illegible]

Grid	Vegetation type	# Individuals Captured per 100 Trap Nights	Relative Abundance	Proportion Captured Adult M	Adult F	Juvenile M	Juvenile F
1	[illegible] meadow	2.00	0.0	0.00	0.00	0.00	0.00
2	[illegible] brush	2.00	0.0	0.00	0.00	0.00	0.00
3	[illegible] brush	2.00	0.0	0.00	0.00	0.00	0.00
4	Mixed-[illegible]er/mixed brush	1.00	54.7	0.00	1.00	0.00	0.00
5	[illegible] brush	0.00	0.0	0.00	0.00	0.00	0.00
6	[illegible]-[illegible]er/serviceberry brush	1.00	0.0	0.00	0.00	0.00	0.00
7	[illegible] meadow	1.00	0.0	0.00	0.00	0.00	0.00
8	[illegible]-[illegible] brush	0.00	0.0	0.00	0.00	0.00	0.00
9	[illegible]-[illegible] (north slope)	0.50	0.1	1.00	0.00	0.00	0.00
10	[illegible]-[illegible] (north slope)	1.00	0.0	0.00	0.00	0.00	0.00
11	[illegible] brush	0.00	0.0	0.00	0.00	0.00	0.00
12	Mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
13	[illegible] fir	0.00	0.0	0.00	0.00	0.00	0.00
14	Aspen	0.00	0.0	0.00	0.00	0.00	0.00

" 1 trap night = one trap baited and set for 24 hours
(# of individuals of each species / # of individuals of all species) x 100

[illegible] (Colorado chipmunk) at [illegible], Huron-Juniper (South Plots), and [illegible] (Colorado chipmunk) for [illegible]

i	a	b	H	T	[illegible]	var(T/T)	D	var(D)	θ	var(θ)
1	0.000		.0						1.000	0.000
2	1.000		1.0				11.0		1.000	0.000
3	[illegible]	1.000	[illegible]	12.0	1.0	0.0	0.0	7.2	0.470	[illegible]
4	0.711	[illegible]	9.7	13.1	1.1	7.6	2.4	13.5	0.257	0.017
5	0.714	0.000	11.0	14.0	1.1	3.6	1.0	21.2	1.107	0.021
6	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-
11	0.710	0.400	11.0	10.7	1.7	17.0	-0.0	7.1	0.710	0.035
12	1.000	[illegible]	11.0	12.0	1.1	0.0	[illegible]	[illegible]	[illegible]	[illegible]
13	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	1.000	0.119	7.0	7.0	0.0	0.0	2.0	1.0	1.010	0.011
[illegible]	[illegible]	[illegible]	7.1	12.7	1.0	1.0	[illegible]	[illegible]	1.000	[illegible]
16	[illegible]	0.000	11.0	11.0	[illegible]	1.0.0	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	1.000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] Insufficient data are insufficient to permit computation
- Zero or negative estimates of population size are not possible for virtual populations (trap nights 6-10) due to a reduction in sampling effort

Table 2.3-98 Average [illegible] body length (m) for adult [illegible] (Colorado chipmunk) on small mammal grids during [illegible], Cubero, 19-24, 197[illegible], for [illegible]

Grid	Vegetation type	[illegible]			[illegible]			[illegible]		
		n	Average	Std. Error	n	Average	Std. Error	n	Average	Std. Error
[illegible]	[illegible]	[illegible]			[illegible]			[illegible]		
[illegible]	[illegible] (south slope)	1	11[illegible]		2	10[illegible]	7[illegible]	3	15[illegible]	[illegible]
[illegible]	[illegible] (north slope)	1	10[illegible]		1	1[illegible]	1.	1	15[illegible]	1[illegible]
[illegible]	[illegible]	[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	15[illegible]	[illegible]

2.3-99

Table 2.3-100 Average live weights (gm) for adult [illegible] (Colorado chipmunk) on all small mammal trapping webs [illegible], July 14-20, 1975, [illegible]

Grid	Location (km)	MALE n	MALE Mean	MALE Std. Error	FEMALE n	FEMALE Mean	FEMALE Std. Error	ALL ADULTS n	ALL ADULTS Mean	ALL ADULTS Std. Error
1	[illegible]	0			0			0		
2	[illegible]	0			0			0		
3	[illegible]	0			0			0		
4	[illegible]	2	50.0	1.0	1	61.0		3	60.3	10.3
5	[illegible]	1			0			0		
6	[illegible]	0			0			0		
7	[illegible]	0			0			0		
8	[illegible]	0			0			0		
[illegible]	[illegible]	5	47.6	1.0	7	51.1	2.4	12	49.7	1.7
[illegible]	[illegible]	2	51.5	4.1	5	55.4	1.3	7	54.3	1.4
[illegible]	[illegible]	0			0			0		
[illegible]	[illegible]	0			0			0		
[illegible]	[illegible]	0			0			0		
[illegible]	[illegible]	0			0			0		
[illegible]	[illegible]	9	49.0	1.4	17	55.1	2.6	[illegible]	53.6	1.9

2.3-101

Table 2.3-102 [illegible] variables (m) for adult [illegible] (Colorado chipmunk) at [illegible] small mammal [illegible], [illegible], 01-Oct-[illegible], 1975, [illegible]

		[illegible]			[illegible]			[illegible]	
Trap	Description [illegible]	n	Average [illegible]	Std. [illegible]	n	Average [illegible]	Std. [illegible]	n	Average [illegible]	Std. [illegible]
1	[illegible]land meadow	0			0					
2	[illegible]	0			0			0		
3	[illegible]	0			0			0		
4	[illegible]/[illegible] brush	0			1	[illegible]	[illegible]	1	[illegible]	[illegible]
5	[illegible]	0			0			0		
6	[illegible]/[illegible]	1			0			0		
7	[illegible]	0			0			0		
8	[illegible]	0			0			0		
9	[illegible] (scrub oak)	2	[illegible]	[illegible]	1	[illegible]	[illegible]	2	[illegible]	[illegible]
10	[illegible] (scrub oak)	1	[illegible]	[illegible]	2	[illegible]	[illegible]	1	[illegible]	[illegible]
11	[illegible]	0			0			0		
12	[illegible]	0			0					
13	[illegible]	0			0					
14	[illegible]	0			0					
[illegible]	[illegible]	5	[illegible]	[illegible]	4	[illegible]	[illegible]	4	[illegible]	[illegible]

2.3-104

2.3-105

Table 2.3-106 Summary of trapping results for Peromyscus maniculatus (deer mouse) on the small animal grid during [illegible], July 25-30, 1975, [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Table 2.3-107 [illegible]

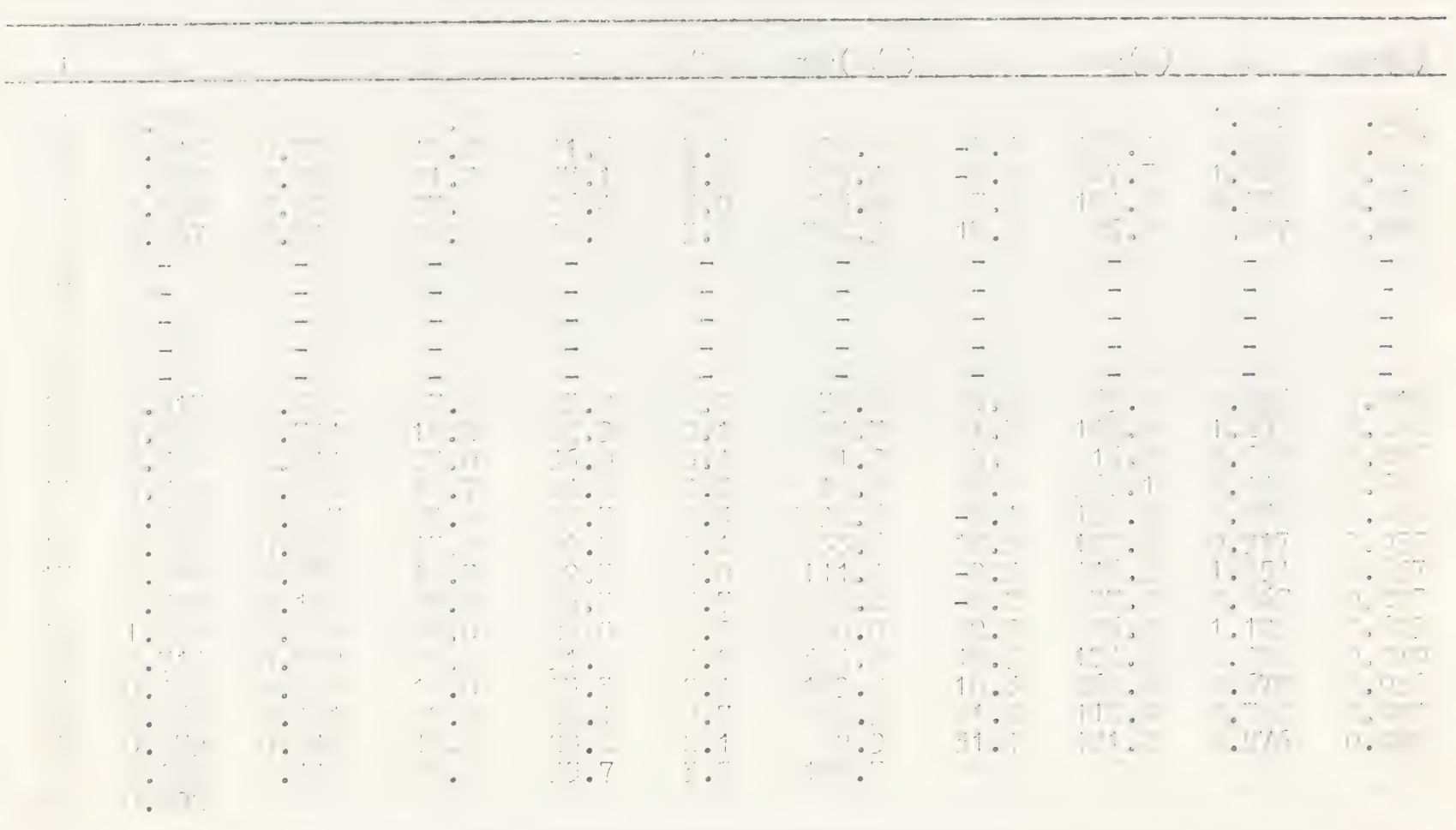
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

Table 2.3-108 Sample-to-sample variability estimates for [illegible] (1 through 5) [illegible], [illegible]-ground-motion, after each [illegible]

i	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]/hr	var(Y/.)	[illegible]	var(.)	[illegible]	var(0)
1	0.000		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.836	0.009
[illegible]	0.[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.037	[illegible]
[illegible]	0.[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]
[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	0.111	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.[illegible]	0.[illegible]
[illegible]	–	–	–	–	–	–	–	–	–	–
[illegible]	–	–	–	–	–	–	–	–	–	–
[illegible]	–	–	–	–	–	–	–	–	–	–
[illegible]	–	–	–	–	–	–	–	–	–	–
[illegible]	–	–	–	–	–	–	–	–	–	–
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]



2.3-110

2.3-111

2.3-112

Table 2.3-113 Average extended range length (m) for adult Peromyscus maniculatus (deer mouse) on small marine islands [illegible], October 19-21, 1974, for [illegible]

Age	Food action type	[illegible]			[illegible]			[illegible]		
		n	Average	Std. Error	n	Average	Std. Error	n	Average	Std. Error
A	[illegible]-to-branch	5	10[illegible].1	1.[illegible]	[illegible]	5.7	2.0	10	20.1	[illegible].9
[illegible]	[illegible]-[illegible] (south slope)	1	60[illegible].		1	1[illegible].7	[illegible].2	2	13.1	2[illegible].1
[illegible]	[illegible]-[illegible] (north slope)	7	1[illegible].2	10.2	5	11.2	10.7	12	11[illegible].2	17.1
[illegible]	[illegible]	[illegible]	[illegible].	[illegible].	1	1.1	[illegible].	[illegible]	1.1	[illegible].2
[illegible]	[illegible]	5	1[illegible].	12.	5			5	10.2	12.3
	[illegible]	[illegible]			[illegible]			[illegible]		
	[illegible]	24	116.	9.5	17	[illegible]7.7	[illegible].[illegible]	41	116.3	7.5

Table 2.3-114 Average rebounded range length (m) for adult Peromyscus maniculatus (deer mouse) on small mammal trapping [illegible] 5, May 12-26, 1975, for [illegible]

Trap	Location type	[illegible]			[illegible]			[illegible]		
		n	Average	Std. Error	n	Average	Std. Error	n	Average	Std. Error
1	[illegible]	5	125.1	12.1	3	81.0	10.3	8	107.7	14.6
2	[illegible]	5	111.4	10.0	4	102.5	14.2	9	110.6	12.2
3	[illegible]	3	130.0	21.6	2	112.7	11.3	5	122.8	03.8
4	[illegible]	1	121.1	07.2	2	153.1	0.	3	177.3	00.2
5	[illegible]	4	111.	11.8	3	92.7	17.2	10	101.3	11.2
6	[illegible]	0			0			0		
7	[illegible]	0			0			0		
	MEAN--ALL CHILDS	22	127.3	12.7	17	110.3	14.3	30	104.9	7.9

Table 2.3-115

Table 2.3-116 Average extended range length (m) for adult Peromyscus verticulatus (deer mouse) on small mammal trapping grid during sampling period 3, Sept. 31-Oct. 4, 1975, for TMS.

Trap location by [illegible]	MALE			FEMALE			ALL ADULTS		
	n	Average	Std. Error	n	Average	Std. Error	n	Average	Std. Error
[illegible]	2	77.3	10.3	0			2	77.3	10.3
[illegible]	2	89.0	1.0	1	91.0		3	89.3	0.9
[illegible]	0			0			0		
[illegible]	0			1	87.4	89.2	1	87.4	89.5
[illegible]	0			0			0		
[illegible]	0			0			0		
GRAND AVERAGE	4	87.1	6.0	3	91.5	14.3	7	85.0	7.2

Table 2.3-118 Average live weights (gm) for adult Peromyscus maniculatus (deer mouse) on all small mammal grids during session 4, July 27-30, 1975, for 1982

Grid	Vegetation type	MALE n	MALE Average	MALE Std. Error	FEMALE n	FEMALE Average	FEMALE Std. Error	ALL ADULTS n	ALL ADULTS Average	ALL ADULTS Std. Error
1	[illegible] meadow	3	21.3	1.0	1	18.0		4	20.5	1.6
2	[illegible]	2	22.0	1.0	2	20.5	3.5	4	25.8	2.6
3	[illegible]	6	21.0	1.1	8	21.9	1.3	14	22.5	0.9
4	[illegible]-juniper/mixed brush	3	19.0	1.0	3	27.7	3.3	6	23.3	3.7
5	[illegible]	5	19.7	4.9	5	23.0	1.9	8	21.4	1.4
6	[illegible]-juniper/sagebrush	7	19.7	1.9	6	24.3	1.5	13	21.5	1.4
7	[illegible] meadow	3	19.0	1.5	2	20.5	1.5	5	19.6	1.2
8	[illegible]-sagebrush	14	20.1	1.0	12	22.1	1.2	26	21.2	0.8
9	[illegible]-juniper (south slope)	3	17.3	1.4	13	22.5	0.7	16	21.2	0.9
10	[illegible]-juniper (north slope)	10	19.2	1.4	6	22.3	1.3	16	20.3	1.0
11	[illegible]	7	21.7	1.2	10	23.4	1.4	17	22.7	1.0
12	[illegible]	10	17.6	1.1	13	24.6	1.7	23	21.4	1.2
13	[illegible]	0			0			0		
14	[illegible]	1	17.0		0			1	15.0	
	TOTAL--ALL AREAS	77	19.1	0.4	91	23.1	0.5	168	21.5	0.4

Table 2.3-120 Percent diet composition for deer mice (Peromyscus maniculatus) collected from major vegetation type during December, 1974 and May, July, and October, 1975 for RBOSP

Habitat/Sampling period		Sample Size	Food categories (% composition) Seed	Succulent	Invertebrates	Vertebrates
Greasewood-Sagebrush						
December, 1974		5	89	9	1	2
May, 1975		4	85	12	2	1
July, 1975		5	98	2	1	0
October, 1975		2	77	21	0	2
	Total	16	Average 89	9	1	1
Pinyon-juniper (south slope)						
December, 1974		5	79	16	5	1
May, 1975		4	69	24	7	0
July, 1975		2	79	21	0	0
October, 1975		0				
	Total	11	Average 75	20	5	1
Pinyon-juniper (north slope)						
December, 1974		0				
May, 1975		3	79	18	3	0
July, 1975		2	100	0	0	0
October, 1975		0				
	Total	5	Average 87	11	2	0
Sagebrush						
December, 1974		5	78	14	3	5
May, 1975		5	40	36	23	1
July, 1975		1	94	4	2	0
October, 1975		2	54	42	0	4
	Total	13	61	26	10	3

Table 2.3-120 (Continued)

Habitat/Sampling period	Sample Size	Food categories (% composition)			
		Seed	Succulent	Invertebrates	Vertebrates
Mixed Brush					
December, 1974	0				
May, 1975	3	56	38	3	3
July, 1975	5	74	20	4	2
October, 1975	2	48	51	1	0
Total	10	Average 63	32	3	2
Aspen					
No individuals captured					

2.3-121

Table 2.3-123 Summary of trapping results for Lemmiscus curtatus (sagebrush vole) on all small mammal grids during trapping period 2, May 10-26, 1975, for IBP/CT

Grid	Vegetation type	Individuals Captured per 100 Trap Nights	Relative Abundance	Proportion Captured Adult		Proportion Captured Juvenile	
				M	F	M	F
1	Bottomland meadow	0.00	0.0	0.00	0.00	0.00	0.00
2	Sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
3	Big sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
4	Pinyon-juniper/mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
5	Big sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
6	Pinyon-juniper/sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
7	Upland meadow	0.00	0.0	0.00	0.00	0.00	0.00
8	Mountain-mahogany brush	0.00	0.0	0.00	0.00	0.00	0.00
9	Pinyon-juniper (north slope)	0.00	7.0	0.00	0.00	0.00	0.00
10	Pinyon-juniper (north slope)	0.00	25.0	0.00	0.00	0.00	0.00
	Big sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
	Pinyon-juniper	0.00	0.0	0.00	0.00	0.00	0.00
	Pinyon-juniper	0.00	0.0	0.00	0.00	0.00	0.00
	Pinyon-juniper	0.00	0.0	0.00	0.00	0.00	0.00

1/ Relative abundance = (number of individuals of species / number of individuals of all species) x 100

Table 2.3-125 Summary of browsing results for Peromyscus [illegible] (deer mouse) on all small mammal grids within [illegible], Feb. 21-Oct. 4, 1973, for [illegible]

Grid	[illegible] location type	Individuals known alive	Relative abundance	No option detected			
				[illegible]		[illegible]	
1	[illegible] meadow	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]-[illegible]/mixed brush	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]-[illegible]/sagebrush	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]-sagebrush	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]-[illegible] (south slope)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]-[illegible] (south slope)	[illegible]	1.7	1.00	1.00	0.00	0.00
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1 Two [illegible] on two [illegible] and not for 24 hours
(No. individuals of each species / Total individuals of all species) 100

Table 2.3-126

Table 2.3-127 Average live weights (gm) for adult Peromyscus [illegible] (♂'s or mouse) on all small mammal grids [illegible] ior [illegible], July 31-[illegible], 1975, [illegible]

Grid	Association type	Wet.		Dry.		Oil.	
		n	Average	n	Average	n	Average
1	[illegible]	0		0		0	
[illegible]	[illegible]	[illegible]		[illegible]		0	
3	[illegible]	[illegible]		[illegible]		0	
4	[illegible]	0		0		0	
[illegible]	[illegible]	[illegible]		[illegible]		0	
6	[illegible]	[illegible]		0		0	
7	[illegible]	0		0		0	
[illegible]	[illegible]	0		0		0	
	[illegible]	1	7.0		[illegible]	1	16.0
	[illegible]	[illegible]	1.0	[illegible]	[illegible]	1	[illegible]
[illegible]	[illegible]	0		0		0	
[illegible]	[illegible]	0		0		0	
[illegible]	[illegible]	[illegible]		0		[illegible]	
[illegible]	[illegible]	0		0		[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 2.3-128

Table 2.3-129 Summary of trapping results for Neotoma cinerea (bushy-tailed wood rat) on all small mammal grids during May - June 1, October 19-24, 1974, for L/V

Grid	Location by Type	Individuals Trapped (per 100 Trap Nights)	Relative Abundance	Proportion Captured Adult I	Adult II	Juvenile I	Juvenile II
1	[illegible] color	0.00	0.0	0.00	0.00	0.00	0.00
2	[illegible] brush	0.00	0.0	0.00	0.00	0.00	0.00
3	[illegible] brush	0.00	0.0	0.00	0.00	0.00	0.00
4	[illegible]-juniper/mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
5	[illegible] brush	0.00	0.0	0.00	0.00	0.00	0.00
6	[illegible]-juniper/sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
7	[illegible] edge	0.00	0.0	0.00	0.00	0.00	0.00
8	[illegible]-sagebrush	0.00	0.0	0.00	0.00	0.00	0.00
9	[illegible]-juniper (south slope)	.75	71.4	1.00	1.00	0.00	0.00
10	[illegible]-juniper (north slope)	.15	14.3	1.00	0.00	0.00	0.00
11	[illegible]	.15	14.3	0.00	1.00	0.00	0.00
12	[illegible] brush	0.00	0.0	0.00	0.00	0.00	0.00
13	[illegible]	.00	0.0	0.00	0.00	0.00	0.00

1 Trap [illegible] [illegible] for 24 hours
(number of individuals of each species / [illegible] multiplied by 100) 1

Table 2.3-130 Summary of trapping results for Lobova circeus (husky-tailed wood rat) on all small mammal grids during sampling period 3, May 19-26, 1973, for LTP

Grid	Vegetation type	Individuals Captured Per 100 Trap Nights	Relative Abundance	Proportion Captured Adult	Juvenile
1	Shoreland meadow	0.00	0.0	0.00 0.00	0.00 0.00
2	[illegible]	0.00	0.0	0.00 0.00	0.00 0.00
3	[illegible] brush	0.00	0.0	0.00 0.00	0.00 0.00
4	Lycon-Lobi ca/mixed brush	0.00	0.0	0.00 0.00	0.00 0.00
5	[illegible] brush	0.00	0.0	0.00 0.00	0.00 0.00
6	Lycon-Lobi ca/coniferous	0.00	0.0	0.00 0.00	0.00 0.00
7	[illegible] valley	0.00	0.0	0.00 0.00	0.00 0.00
8	[illegible]-coniferous	0.00	0.0	0.00 0.00	0.00 0.00
9	Lycon-Lobi ca (south slope)	0.47	100.0	0.33 0.17	0.00 0.00
10	Lycon-Lobi ca (north slope)	0.00	0.0	0.00 0.00	0.00 0.00
11	[illegible]	0.00	0.0	0.00 0.00	0.00 0.00
12	[illegible]	0.00	0.0	0.00 0.00	0.00 0.00
13	[illegible]	0.00	0.0	0.00 0.00	0.00 0.00
14	[illegible]	0.00	0.0	0.00 0.00	0.00 0.00

1 [illegible] captured and set for 1 hours
/ ([illegible] of each grid / [illegible] of individuals of all species) 100

Table 2.3-131 Summary of trapping results for Neotoma cinerea (bushy-tailed wood rat) on all small mammal grids during period 4, July 25-30, 1975, for [illegible]

Grid	Vegetation type	Individuals per 100 trap nights	Relative abundance	Proportion Carbaryl: [illegible]	Proportion Carbaryl: [illegible]	Proportion Control: [illegible]	Proportion Control: [illegible]
1	[illegible] in color	0.00	0.0	0.00	0.00	0.00	0.00
2	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
3	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
4	[illegible]/[illegible]/mixed brush	0.00	0.0	0.00	0.00	0.00	0.00
5	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
6	[illegible] - [illegible]/[illegible] brush	0.00	0.0	0.00	0.00	0.00	0.00
7	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
8	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
9	[illegible] - [illegible] ([illegible])	1.00	[illegible]	0.00	0.00	[illegible]	[illegible]
[illegible]	[illegible] - [illegible] ([illegible])	[illegible]	1.00	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	0.00	0.0	0.00	0.00	0.00	[illegible]
[illegible]	[illegible]	0.00	[illegible]	0.00	[illegible]	0.00	[illegible]
[illegible]	[illegible]	[illegible]	0.0	[illegible]	[illegible]	0.00	[illegible]
[illegible]	[illegible]	[illegible]	0.0	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] ([illegible] [illegible] / [illegible] [illegible] [illegible])

2.3-132

Table 2.3-133

Table 2.3-135 Average live weight (g) for adult Neotoma cinerea (bushy-tailed wood rat) on all small mammal trapping grids in the [illegible], July 31-Aug. 4, 1975, [illegible]

Unit	Location by [illegible]	[illegible]		[illegible]		[illegible]	
		n	Average Mass	n	Average Mass	n	Average Mass
1	[illegible]	0		0		0	
2	[illegible]	0		0		0	
3	[illegible]	0		0		0	
4	[illegible]/mixed brush	0		0		0	
[illegible]	[illegible]	0		0		0	
6	[illegible]/[illegible]	0		0		0	
7	[illegible]	0		0		0	
[illegible]	[illegible]	1		1		0	
[illegible]	[illegible] (north slope)	0		1	17.5	0	17.5
[illegible]	[illegible] (north slope)	0		3	19.0	0	19.0
[illegible]	[illegible]	1		1	19.0	1	20.0
[illegible]	[illegible]	1		1		0	
[illegible]	[illegible]	0		1		0	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]

2.3-136

Table 2.3-137

2.3-138

Table 2.3-139 [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	.00	.0	.00	.00	0.00	.00
2	[illegible]	.00	.0	.00	.00	0.00	.00
3	[illegible]	.00	.0	.00	.00	.00	0.00
4	[illegible]	.00	.0	.00	0.00	.00	.0
5	[illegible]	.00	.0	.00	.00	0.00	.0
6	[illegible]	.00	.0	.00	.00	.00	.0
7	[illegible]	.00	.0	.00	.00	.0	.0
8	[illegible]	.00	.0	.00	.00	.00	.0
9	[illegible]	.00	.0	.00	.00	.0	.0
10	[illegible]	.00	.0	.00	.00	.0	.0
11	[illegible]	.00	.0	.00	.00	.00	.0
12	[illegible]	.00	.0	.00	.00	.00	.0
13	[illegible]	.00	.0	.00	.00	.00	.0
14	[illegible]	.00	.0	.00	.00	.00	.0
15	[illegible]	.00	.0	.00	.00	.00	.0
16	[illegible]	.00	.0	.00	.00	.00	.0

[illegible]

1										

2.3-143

2.3-144

Table 2.3-145 Average and range of lengths (m) of adult Glyphioramus sawyeri (post-nodal vole) on small normal mid-dune habitat, Oct. 31-Oct. 4, 1977, Tern Island

Cell	Location type	Trap n	Trap Average	Trap Std. Error	Track n	Track Average	Track Std. Error	Age Adults n	Age Adults Average	Age Adults Std. Error
1	Interior coastal-edge dune	0			0			0		
2	Interior-jejunal (south slope)	0			0			0		
3	Interior-jejunal (south slope)	0			0			0		
4	Interior	0			0			0		
5	Interior	0			0			0		
6	Interior	1	1.0		1	1.0		1	56.0	
7	Interior									
8	Interior									
TOTAL--ALL CELLS		1	1.0		1	1.0		1	56.0	

2.3-146

Table 2.3-147 [illegible] for adult Blarinomys breviceps (red-backed vole) on all overall control grids [illegible], July 1-30, 1975, [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	0			0			0	
[illegible]	[illegible]	0			0			0	
[illegible]	[illegible]	0			0			0	
[illegible]	[illegible]	0			0			0	
[illegible]	[illegible]	0			0			0	
7	[illegible]	0			0			0	
[illegible]	[illegible]	0			0			0	
[illegible]	[illegible]	0			0			0	
[illegible]	[illegible]	0			0			0	
[illegible]	[illegible]	0			0			0	
[illegible]	[illegible]	0			0			0	
[illegible]	[illegible]	1	16.[illegible]	[illegible].2	0	[illegible].4	1.4	11	21.3	1.6
[illegible]	[illegible]	1	13.[illegible]	[illegible].2	0	[illegible].1	[illegible].2	11	[illegible].9	1.9
[illegible]	[illegible]	2	17.[illegible]	[illegible].0	17	[illegible].[illegible]	1.[illegible]	[illegible]	[illegible].1	1.[illegible]

2.3-148

Table 2.3-149

2.3-150

Table 2.3-151 [illegible]

[illegible]	Initial [illegible]	[illegible]	Conversion Obtained	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

2.3-152

Table 2.3-153 [illegible] of radial [illegible] (no./cm³ vol.) on all crops harvested yields during [illegible] 2, Apr 16-17, 1975, [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	1	10.0	1	10.0
[illegible]					
[illegible]					
[illegible]					
[illegible]					
6	[illegible]				
7	[illegible]				
[illegible]					
[illegible]					
[illegible]					
[illegible]					
[illegible]					
[illegible]					

2.3-154

2.3-155

2.3-156

Table 2.3-157 [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	.0	.0	.00	0.00
		.0	.0	.00	.00
		.0	.0	.00	0.00
		.0	.0	.00	.00
		.0	.0	.00	.00
		.0	.0	.00	.00
		.0	.0	.00	.00
		.0	.0	.00	0.00
		.0	.0	.00	.00
		.0	1.0	1.00	.00
		.0	.0	.00	.00
		.0	.0	.00	.00

1/ [illegible]

2.3-158

Table 2.3-159 Summary of trapping results for Microtus longicaudus (long-tailed vole) on all small mammal grids during trapping periods 1, dates 31-Oct. 4, 1975, for [illegible]

Grid	Location type	Individuals per 100 trap nights	Relative abundance	Pre-emption Females (adult)	Pre-emption Females (juvenile)	Pre-emption Males (adult)	Pre-emption Males (juvenile)
1	[illegible]	1.00	0.0	.00	0.00	0.00	0.00
2	[illegible]	0.00	0.0	1.00	0.00	0.00	0.00
3	[illegible]	.21	10.3	1.00	0.00	1.00	0.00
4	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
5	[illegible]	0.00	.0	.00	0.00	0.00	0.00
6	[illegible]	.00	.0	0.00	0.00	0.00	0.00
7	[illegible]	0.00	.0	0.00	0.00	0.00	0.00
8	[illegible]	1.50	[illegible]	–	–	–	–
[illegible]	[illegible]	.00	.0	.00	0.00	0.00	1.00
9	[illegible]	.00	.0	.00	0.00	0.00	0.00
10	[illegible]	0.00	1.0	1.00	0.00	0.00	0.00
11	[illegible]	0.00	[illegible]	1.00	0.00	0.00	0.00
12	[illegible]	[illegible]	[illegible]	.00	1.00	0.00	1.00
[illegible]	[illegible]	[illegible]	[illegible]	1.00	0.00	0.00	[illegible]

1 [illegible] on all trapped and set for 24 hours.
([illegible] individuals of each species / [illegible] of individuals of all species)
– [illegible] for this location could not be made in the field.

2.3-160

TABLE 2.3-161

2.3-162

Table 2.3-163 Percent diet composition for long-tailed voles (Microtus longicaudus) collected from major vegetation types during December, 1974 and May, July and October, 1975 for RBOSP

Habitat/Sampling period		Sample Size		Food categories (% composition) Seed	Succulent	Invertebrates	Vertebrates
Greasewood-Sagebrush							
No individuals captured							
Pinyon-juniper (south slope)							
No individuals captured							
Pinyon-juniper (north slope)							
No individuals captured							
Sagebrush							
No individuals captured							
Mixed Brush							
No individuals captured							
Aspen							
December, 1974		0					
May, 1975		4		96	3	1	0
July, 1975		5		6	94	0	0
October, 1975		4		12	88	0	1
	Total	13	Average	36	64	0	0

2.3-164

2.3-165

2.3-165

Table 2.3-167 Summary of [illegible] results for [illegible] (sand-mud mole) on mid-shelf sands, [illegible], July 21-[illegible], 1973, [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

([illegible])

Table 2.3-169

Table 2.3-170 Average live weights (gm) for adult Peromyscus [illegible] (age/[illegible] role) on [illegible] small mammal grid, Dunlap, Sawtelle, Grid 4, July 25-30, 1975, [illegible]

Grid	Vegetation type	♂♂ n	♂♂ Average	♂♂ Std. Error	♀♀ n	♀♀ Average	♀♀ Std. Error	All Adults n	All Adults Average	All Adults Std. Error
1	[illegible] meadow	[illegible]			0			0		
2	[illegible] brush	0			0			0		
3	[illegible] brush	0			0			0		
4	[illegible]-juniper/mixed brush	0			0			0		
5	[illegible] brush	0			0			0		
6	[illegible]-[illegible]/sage brush	0			0			0		
7	[illegible] meadow	0			0			0		
A	[illegible]-sage brush	[illegible]			0			[illegible]		
[illegible]	[illegible] (south slope)	[illegible]			0			[illegible]		
[illegible]	[illegible] (south slope)	[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	[illegible]			[illegible]			[illegible]		
[illegible]	[illegible]	1	17.0		1	21.0		1	20.0	
[illegible]	[illegible]	[illegible]			[illegible]			[illegible]	19.7	0.5
[illegible]	[illegible]	[illegible]			0			0		
[illegible]	[illegible]	0			0			0		
[illegible]	[illegible]	[illegible]	17.0		[illegible]	21.0	1.0	[illegible]	19.7	1.3

2.3-171

Table 2.3-172 Summary of trapping results for Perognathus apache (apache pocket mouse) on all small mammal grids during capture period 5, May 13-26, 1975, for WRSC.

Grid	Location by [illegible]	Individuals Captured per 100 Trap Nights	Relative Abundance	Proportion Captured Male		Juvenile	
				#	%	#	%
1	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
2	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
3	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
4	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
5	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
6	[illegible]	1.11	100.0	1.00	1.00	0.00	0.00
7	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
8	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
9	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
10	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
11	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
12	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00

1 [illegible] = one trap baited and set for 24 hours
(number of individuals of each species / number of individuals of all species) x 100

Table 2.3-173 Summary of trapping results for Peromyscus gossypinus (cotton mouse) on old field-mesic forest ecotone, July 25-31, 1975, [illegible]

Species	[illegible]	Individuals Per 100 Trap Nights	Relative Abundance	Proportion Captures [illegible]		Proportion Captures [illegible]	
1	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
2	[illegible]	0.11	10.0	1.00	0.00	0.00	0.00
3	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
4	[illegible]-tailed shrew	0.00	0.0	0.00	0.00	0.00	0.00
5	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
6	[illegible]-tailed shrew	0.11	10.0	0.00	1.00	0.00	0.00
7	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
8	[illegible]-eared mouse	0.00	0.0	0.00	0.00	0.00	0.00
9	[illegible] (cotton mouse)	0.00	0.0	0.00	0.00	0.00	0.00
10	[illegible] (cotton mouse)	0.00	0.0	0.00	0.00	0.00	0.00
11	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
12	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00
13	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00

1 [illegible]

([illegible] of each species / [illegible] of individuals of all species) X 100

Table 2.3-174 Summary of bioassay results for _____ _____ (apache pocket mouse) on the small mammal prairie unit [illegible], Sept. 31-Oct. 4, 1975, for 0 Gy

Cell	[illegible]	Individuals per 100 [illegible]	Mean [illegible] number	Relative [illegible] number	Proportion [illegible]		Proportion [illegible]	
1	[illegible]	1.00	1.0	0.00	0.00	0.00	0.00	
[illegible]	[illegible]	1.00	1.0	0.00	0.00	0.00	0.00	
[illegible]	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00	
4	[illegible]	1.31	96.[illegible]	0.00	1.00	1.00	1.00	
[illegible]	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00	
6	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00	
7	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00	
[illegible]	[illegible]	0.00	14.[illegible]	0.00	1.00	0.00	0.00	
[illegible]	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00	
[illegible]	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00	
[illegible]	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00	
[illegible]	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00	
C	[illegible]	0.00	0.0	0.00	0.00	0.00	0.00	

1 [illegible]

Table 2.3-175 [illegible] on adult [illegible] a echo (a male [illegible] mouse) on all adult normal weight chain [illegible], May 1 - [illegible], 197[illegible], for [illegible]

Trial	[illegible]	Low		Middle		High	
		No. Survivors	Mean Wt. (gm)	No. Survivors	Mean Wt. (gm)	No. Survivors	Mean Wt. (gm)
1	[illegible]	2		2		0	
2	[illegible]	1		2		2	
3	[illegible]	1		2		2	
4	[illegible]	1		2		2	
5	[illegible]	2		2		2	
6	[illegible]	1	14.0	2		2	14.0
7	[illegible]	1		2		2	
8	[illegible]	1		2		2	
9	[illegible]	1		2		2	
10	[illegible]	1		2		2	
11	[illegible]	1		2		2	
12	[illegible]	1		2		2	
13	[illegible]	1		2		2	
14	[illegible]	1		2		2	
15	[illegible]	1		2		2	
16	[illegible]	1		2		2	
17	[illegible]	1		2		2	
18	[illegible]	1		2		2	
19	[illegible]	1		2		2	
20	[illegible]	1		2		2	
[illegible]	[illegible]	1	14.0	2		2	14.0

Table 2.3-176 Average live weights (gm) for adult _Perognathus a apache_ (apache pocket mouse) on all small mammal grids during [illegible], July 05-??, 1975, [illegible]

2.3.3.5

Raw Data for
Small Mammals

File No: C.5.1.2.14-43

Sheet 1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Emmigrant/Sage Grid A Sample Period 5 Trap Night 01

Date, time traps set 30 SEPT 75 1200 Date, time traps checked 1 OCT 75 1610

Last toe clip # used on previous day 0235 Field Analyst(s) WSH

Project 83 QA Check JB 10/9/75 WTT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-1	PEMA	0112	F	A	19	D	NONE
K-1	PEMA	0241 N	F	J	12	I	NONE
D-1	PEMA	0242 N	M	A	16	I	NONE
C-1	EUMI	0243N	F	A	31	I	NONE
B-1	PEAP	0(12)49N	F	A	10	I	MISCLIP
A-1	EUMI	1002	M	A	30	D	NONE
A-2	EUMI	0(24)23N	M	A	27	I	MISCLIP 2 AND 4 RT FRNT
C-2	EUMI	0424 N	F	A	26	I	NONE
D-2	PEMA	0135	F	A	16	D	PAST SIGNS OF LACTATION
H-2	PEMA	0121	M	A	15	D	NONE
K-2	FUMI	1000	F	A	28	I	SWOLLEN DIGITAL BASE MAYBE NATURAL LOSS
L-3	EUMI	0220	M	A	30	I	NONE
E-3	EUMI	0425N	M	A	29	I	NONE
C-3	EUMI	0040	M	A	28	I	NONE
B-3	EUMI	0431N	F	A	29	I	NONE
A-3	EUMI	0143	F	A	31	I	BAD CLIPS 4+3 REAR FEET
A-4	EUMI	0432N	M	A	30	D	CYST LEFT FRONT FOOT
B-4	EUMI	0433N	M	A	36	I	NONE
H-4	EUMI	043(34)N	M	A	31	I	NONE MISCLIP
I-4	EUMI	0354	M	A	36	I	NONE
K-4	EUMI	0435N	M	A	32	I	NONE
M-4	EUMI	0441 N	F	A	33	I	NONE
J-4	EUMI	0442 N	F	A	29	I	NONE
I-5	PEMA	0443 N	F	A	12	I	NONE
J-5	EUMI	0411	M	A	30	I	NONE
J-6	EUMI	0444N	M	A	29	I	NONE
G-6	EUMI	0004	M	A	35	D	NONE
F-6	EUMI	0445N	F	A	35	D	NONE
E-6	EUMI	0451N	M	A	41	I	NONE
D-6	PEMA	0314	F	A	14	I	NONE
C-6	PEMA	0313	M	A	16	I	NONE

Key taxonomic characters, physical condition of animal, etc.

FROST INC. Division of Hi-Voltage

Sheet 2 of 2 — SMALL LIVE TRAPPING FIELD DATA SHEET — File No: C.5.12.14-44

Grid Name Face/Grassland Grid 1 — Sample Period 5 — Trap Night 1

Date, time traps set 9/30/75 (1200) — Date, time traps checked 10/1/75 (1605)

Last toe clip # used on previous day N/A — Field Analyst(s) DCK

Project 83-03 — QA Check JB 10/9/75 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional Notes*
M-10	Pema	1221N	F	J	12	I	none
M-12	Pema	1222N	M	J	14	I	none
L-13	Eumi	1223N	F	A	36	I	none
H-13	Eumi	1224N	F	A	33	I	bobbed-tail
F-13	Eumi	1225N	F	A	33	I	D
C-13	Eumi	0131	F	A	34	I	none
A-13	Eumi	1231N	F	A	33	I	D
A-12	Eumi	0125	M	A	29	I	none
C-10	Eumi	1232N	F	A	31	I	D
D-12	Pema	1233N	F	J	17	I	D
E-12	Eumi	1234N	M	A	29	I	none
L-12	Eumi	1235N	F	A	31	I	none
K-11	Eumi	0345	M	A	36	I	D
H-11	Eumi	1241N	M	A	29	I	none
C11	Pema	1242N	M	J	16	I	D
A-10	Eumi	1243N	M	A	34	I	D
J-10	Milo	1244N	U	A	U	U	none
L-10	Eumi	1245N	M	A	36	I	D
I-9	Eumi	0235	F	A	35	I	D
J-9	Pema	1251N	M	J	15	I	none
E-9	Pema	1252N	F	J	13	I	none
D-9	Eumi	0355	M	A	27	I	none
C-8	Eumi	1253N	M	A	32	I	D
B-8	Eumi	1254N	M	J	29	I	D
G-8	Eumi	1255N	F	A	33	I	none
L6	Eumi	1311N	M	A	30	I	none
M6	Eumi	1031	M	A	32	I	D - sex?
K6	Eumi	0234	F	A	34	I	D
E7	Eumi	1312M	F	A	33	I	D
D5	Pema	1313N	M	A	13	I	D
E5	Eumi	1314M	F	A	32	I	D

*Key taxonomic characters, physical condition of animal, etc.

ECI

File No: C 5 1 2 14-45

Sheet 1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name GRASSWOOD/SAGE Grid A Sample Period 5 Trap Night 02

Date, time traps set 1 OCT 1975 1630 Date, time traps checked 2 OCT 76 0930

Last toe clip # used on previous day 0451 Field Analyst(s) WSH

Project 83 QA Check AB 10/9/75 WH 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-1	PEMA	0133	F	A	20	A	ENLARGED NIPPLES
[illegible]-1	PEMA	0452N	M	A	16	I	NONE FLEAS PRESENT
[illegible]-1	PEMA	0453N	M	A	16	I	NONE
[illegible]-1	EUMI	1000	F	A	RECAP	A	DIGITAL BASE SWOLLEN (DYST)
[illegible]-2	PEMA	0454N	M	A	16	I	NONE
[illegible]-2	PEMA	0455N	M	J	13	I	NONE
[illegible]-2	PEMA	1111N	M	J	12	I	NONE
[illegible]-2	PEMA	0353	M	A	19	I	NONE
[illegible]-3	PEMA	1112N	F	J	13	I	NONE
[illegible]-3	MILO	1113N	M	A	26	I	NONE
[illegible]-3	PEMA	0215	F	A	19	A	CLIP POOR ENLARGED NIPPLES
[illegible]-4	PEMA	1114N	M	J	12	I	NONE
[illegible]-4	PEMA	1115N	F	J	12	I	NONE
C-6	PEMA	1121N	M	J	14	I	NONE
F-6	PEMA	0314	F	A	RECAP	A	(NONE) what characters were used to ascertain adult status?

use U → undetermined for recap

*Key taxonomic characters, physical condition of animal, etc: TRAP BOX AT A-2 W/7 TRAPS (ECI)

T-11-2 of 2

File No: C.5.1.2.14-41

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Granite Mtn/Blackbrush Grid A Sample Period 5 Trap Night 2

Date, time traps set 10/1/75 (1630) Date, time traps checked 10/2/75 (0930)

Last toe clip # used on previous day 1314 Field Analyst(s) DCK ~~WST~~

Project 83-03 QA Check VB 10/9/75 WST 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-5	PEMA	0321	M	A	21	I	none
A-11	PEMA	0224	M	J	14	I	pelage & weight indicate J or I but was a recap
A-12	PEMA	0304	F	A	23	A	pregnant
B-13	EUMI	0131	F	A	Recap.	I	none
H-13	EUMI	0331	M	A	33	I	none
F-12	PEMA	0323	M	A	17	I	none
D-12	PEMA	1315N	F	J	15	I	none
C-12	EUMI	1234	M	A	Recap	I	none
C-11	PEMA	0124	M	A	21	I	none
K-11	PEMA	1321N	M	J	15	I	none
L-10	PEMA	1322N	M	J	13	I	none
C-8	PEMA	0313	M	A	Recap	I	none
G-6	EUMI	0411	M	A	Recap	I	none
J-6	EUMI	0354	M	A	Recap	I	none
J-5	PEMA	1443	F	A	Recap	I	none
I-5	PEMA	1323N	F	J	15	I	none
L-6	PEMA	1324N	F	J	18	D	none

*Key taxonomic characters, physical condition of animal, etc.

Sheet 1 of 3

C.5.1.2.14-#47

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name BREASTWOOD/SAGE Grid # A Project 85 Trap Night 05

Date, time traps set 2 OCT 75 0930 Date, time traps checked 3 OCT 75 1130

L[redacted] toe clip # used on previous day 1121 Field Analyst(s) WSH

Trap period 5 QA Check JB 11/5/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	ANIMAL ~~Trap~~ Weight gm.	Reprod. Status	Additional* Notes
A-1	EUMI	0143	F	A	RECAP	D	NONE
B-1	EUMI	0350	M	J	29	I	NONE
C-1	EUMI	1122N	M	A	30	I	POOR CONDITION
D-1	EUMI	1123N	M	A	32	D	NONE
H-1	EUMI	1124N	F	A	30	D	NONE
J-1	PEMA	0452	M	A	RECAP	I	NONE
K-1	EUMI	1125N	F	A	32	I	NONE
L-1	PEMA	0155	M	A	16	I	NONE
M-1	EUMI	1131N	F	A	33	I	NONE.
K-2	PEMA	0455	M	J	RECAP	I	NONE
J-2	EUMI	043(34)	M	A	RECAP	D	NONE
H-2	EUMI	1132N	M	A	33	D	NONE
D-2	EUMI	1133N	F	J	29	D	NONE
C-2	EUMI	1134N	F	A	35	I	NONE
B-2	EUMI	1052	M	A	31	I	NONE
A-2	EUMI	0(35)23	M	J	27	I	POOR CONDITION
A-3	EUMI	0431	F	A	RECAP	I	NONE
B-3	PEMA	1135N	M	J	11	D	NONE
C-3	EUMI	1141N	F	A	30	D	NONE
D-3	EUMI	1142N	M	J	29	I	POOR CONDITION
F-3	EUMI	1143N	M	J	29	I	POOR CONDITION
H-3	MILO	1144N	M	J	20	D	NONE
J-3	PEMA	0453	M	A	RECAP	I	NONE
K-3	EUMI	0354	M	A	RECAP	D	NONE
L-3	PEMA	0211	F	A	16	D	ENLARGED NIPPLES
M-3	MILO	1145N	F	A	21	I	NONE
K-4	EUMI	1151N	F	A	33	I	FLEAS
M-4	PEMA	0343	M	A	19	D	NONE
[redacted]	EUMI	1152N	F	A	33	D	NONE
H-6	EUMI	1153N	M	A	32	I	NONE
G-6	EUMI	1154N	F	A	31	D	NONE

*Key taxonomic characters, physical condition of animal, etc.

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SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.1.2.14-48

Grid Name GREATWOOD / SAGE Grid # A Project 83 Trap Night 03

Date, time traps set 2 OCT 75 1130 Date, time traps checked 3 OCT 75 1130

Last toe clip # used on previous day 1121 Field Analyst(s) WSH

Trap period 5 QA Check JB 10/9/75 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight gm.	Reprod. Status	Additional* Notes
J-4	PEMA	1155N	F	J	11	D	NONE
I-4	MILO	1202N	F	A	22	D	NONE
H-4	PEMA	1114	M	J	RECAP 10	D	NONE
F-5	EUMI	1213N	F	A	30	I	NONE
F-4	EUMI	0451	M	A	RECAP	I	NONE
E-5	PEMA	0314	F	A	RECAP	I	NONE
C-4	EUMI	0424	F	J	RECAP	I	NONE
6-A	PEMA	1214N	M	J	10	D	NONE CLIPPED 121(AS)

*Key taxonomic characters, physical condition of animal, etc.

sheet 3 of 3

C-5.12.14-49

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Greasewood / Sage Grid # A Project 83-03 Trap Night 3

Date, time traps set 10/3/75 (0930) Date, time traps checked 10/4/75 1130

Last toe clip # used on previous day 1324 Field Analyst(s) DCK

Trap period 5 QA Check JB 10/9/75 WRT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight (gm)	Reprod. Status	Additional* Notes
A-8	PEMA	0321	M	A	Recap	I	none
A-11	EUMI	0125	M	A	Recap	I	none
A-12	EUMI	0131	F	A	Recap	I	none
B-13	EUMI	1325N	M	A	31	I	none
E-13	PEMA	1331N	M	A	20	I	huge bot larvae in left hindleg
L-13	PEMA	12211	F	A	Recap	I	none
L-12	EUMI	1223	F	A	Recap	I	poor condition
J-12	EUMI	0055	F	A	35	I	none
D-12	PEMA	0323	M	A	17	I	none
C-12	EUMI	1224	F	A	Recap	I	none
C-11	EUMI	1234	M	A	Recap	I	none
J-11	PEMA	1332N	F	J	13	I	none
K-11	SPLA	1333N	F	A	148	I	none
L-11	PEMA	1334N	F	J	13	I	none
M-10	PEMA	1335N	M	A	16	I	none
L-10	PEMA	1322	M	A	Recap	I	pelage suggests Juv.
G-10	PEMA	1321	M	A	Recap	I	none
E-9	PEMA	0124	M	A	Recap	I	none
D-9	PEMA	1341N	F	J	15	I	none
D-10	PEMA	1342N	F	A	16	I	none
C-10	EUMI	1234	M	A	Recap	I	same Animal caught in C-11
C-8	PEMA	0313	M	A	Recap	D	none
G-8	PEMA	1343N	F	A	18	I	bot fly larva has emerged from left hip.
J-8	MILD	1344N	U	A	19	I	none
J-7	EUMI	0411	M	A	Recap	D	none
I-7	PEMA	1252	F	A	Recap	I	none
G-7	PEMA	1251	M	J	Recap	I	none
E-7	PEMA	1343	F	A	Recap	I	same mouse w/ hole in left hip
E-6	EUMI	1345N	F	A	30	I	none
F-6	EUMI	1351N	F	A	34	I	none
D-6	EUMI	1352N	M	A	31	I	none
C-6	PEMA	1353N	F	J	11	I	none
B-6	EUMI	1354N	M	A	26	D	none

*Key taxonomic characters, physical condition of animal, etc.

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.12.14-50

Grid Name Greenwood Sage Grid # A Project 83-03 Trap Night 4

Date, time traps set 10/3/75 (1330) Date, time traps checked 10/3/75 (1400)

Last toe clip # used on previous day 1214 Field Analyst(s) DCK

Trap period 5 QA Check JB 10/9/75 WTT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Trap Weight gm	Reprod. Status	Additional* Notes
*B-1	EUMI	1355N	♀	A	35	I	none
A-1	EUMI	3050	♂	A	34	D	none
B-3	EUMI	1411N	♀	A	36	I	none
C-2	EUMI	1412N	♂	A	29	I	none
B-2	EUMI	1413N	♀	A	37	I	none
D-1	EUMI	1414N	♀	A	40	I	none
C-1	EUMI	1122	♂	A	Recap	I	none
D-6	EUMI	1345	♀	A	Recap	I	none
E-5	EUMI	1415N	♀	A	36	I	none
F-3	EUMI	1421N	♀	A	33	I	none
J-5	EUMI	1422N	♀	A	30	D	none
L-4	EUMI	1423N	♂	A	34	I	none
J-2	PEMA	0452	♂	A	Recap	D	none
M-2	EUMI	0435	♂	A	Recap	D	none

* note: these traps were checked and closed and reopened 10/4/75 A.M.
DCK

*Key taxonomic characters, physical condition of animal, etc.

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SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.1.2.14-57

Grid Name GREENWOOD/SAGE Grid # A Project 83 Trap Night 04

Date, time traps set 30 OCT 75 1330 Date, time traps checked 1 OCT 75 0930

Left toe clip # used on previous day 1214 Field Analyst(s) WSH

Trap period 5 QA Check JB 10/9/75 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	ANIMAL ~~Trap~~ Weight gm	Reprod. Status	Additional* Notes
F-1	PEMA	1215N	F	J	6	D	NONE
H-1	PEMA	0453	M	J	RECAP	D	NONE
J-1	PEMA	0454	M	A	RECAP	I	NONE
M-1	PEMA	0141	F	A	18	A	NIPPLES ENLARGED
H-2	EUMI	1412	M	A	RECAP	I	NONE
D-2	PEMA	2154N	M	J	7	D	NONE
A-2	EUMI	2153N	M	A	32	I	NONE
A-3	PEMA	0353	M	A	RECAP	D	NONE
D-3	PEMA	2152N	F	J	14	I	NONE
H-3	MILO	2151N	F	A	21	D	NONE
J-3	MILO	1113	M	A	RECAP	D	NONE
K-3	PEMA	2145N	M	J	11	D	NONE
M-3	MILO	2144N	M	J	19	D	NONE
K-4	PEMA	2143N	F	J	14	I	NONE
G-6	EUMI	1000	F	A	RECAP	I	NONE
H-5	EUMI	1423	M	A	RECAP	I	NONE ✓
G-4	EUMI	0040	M	A	RECAP	I	NONE
G-5	PEMA	2142N	F	J	12	I	NONE
F-4	PEMA	0314	F	A	RECAP	I	NONE
A-6	PEMA	0321	M	A	RECAP	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

RECSP PROGRESS REPORT

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File No: C-5-1-2-14-52

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Grassland/Sage Grid A Sample Period 5 Trap Night 4

Date, time traps set 10/3/75 (1330) Date, time traps checked 10/4/75 (0930)

Last toe clip # used on previous day 1423 Field Analyst(s) DCK

Project 83-03 QA Check JB 10/9/75 WRT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-8	PEMA	1424N	F	J	15	I	none
A-10	EUMI	0131	F	A	Recap	D	none
A-12	EUMI	0125	M	A	Recap	I	poor condition
L-12	PEMA	1425N	F	J	14	I	none
F-12	EUMI	1234	M	A	Recap	I	none
C-11	PEMA	01241	M	A	Recap	I	none
J-11	PEMA	13341	F	A	Recap	I	none
K-11	EUMI	1223	F	A	Recap	I	none
L-11	EUMI	1235	F	A	Recap	I	none
M-11	PEMA	1431N	M	A	16	I	none
M-10	PEMA	1222	M	A	Recap	I	none
G-10	PEMA	1332	F	A	Recap	I	none
D-10	PEMA	1342	F	U	Recap	I	pelage could be juv.
D-9	PEMA	1321	M	A	Recap	I	none
C-8	MILO	1432N	U	A	26	I	none
G-8	PEMA	1252	F	A	Recap	I	none
L-8	PEMA	1433N	M	A	16	I	none
M-8	MILO	1434N	U	A	21	I	none
I-7	PEMA	1335	M	A	Recap	I	none
F-7	PEMA	1343	F	A	Recap	I	none
B-6	PEMA	1341	M	J	11	I	none

*Key taxonomic characters, physical condition of animal, etc.

ECI

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C-5.1.2.14-53

Grid Name GREASEWOOD/SAGE Grid # A Project 83 Trap Night 05

Date, time traps set 4 OCT 75 1115 Date, time traps checked 5 OCT 75 0935

Last toe clip # used on previous day 2142 Field Analyst(s) WSH U

Trap period 5

QA Check JB 10/9/75 WSH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	~~Trap~~ Animal Weight gm	Reprod. Status	Additional* Notes
A-1	EUMI	1455N	M	A	34	I	NONE
B-1	EUMI	2111N	F	A	31	I	NONE
C-1	EUMI	0293	F	A	RECAP	I	NONE
F-1	SPLA	2112N	M	A	U	I	NONE
H-1	PEMA	2155N	M	A	14	I	SHOCK, POOR CONDITION NAT CLIP 0055 FLEAS
M-1	PEMA	0141	F	A	RECAP	A	ENLARGED NIPPLES
M-2	PEMA	2143	F	J	RECAP	I	FLEAS
L-2	EUMI	1000	F	A	RECAP	I	NONE
K-2	PEMA	U	U	U	U	U	ESCAPED
J-2	PEMA	1112	F	J	RECAP 12	I	FLEAS
H-2	PEMA	0241	F	J	RECAP	I	NONE
F-2	EUMI	1351	F	A	RECAP	I	POOR CONDITION
D-2	EUMI	1122	M	A	RECAP 50	D	FLEAS
B-2	PEAP	2113N	F	A	8	A	PREGNANT? SWOLLEN
A-2	EUMI	0(24)23	M	A	RECAP	I	ENGORGED TICK IN THROAT AREA POOR CONDITION
A-3	EUMI	1413	F	A	RECAP	I	POOR CONDITION
C-3	EUMI	0350	M	A	RECAP	I	NONE
D-3	EUMI	2114N	F	A	32	A	SWOLLEN
E-3	EUMI	(12)115N	M	J	29	I	NONE
L-3	PEMA	2121N	F	J	13	I	NONE
M-3	MIUS	1145	U	A	RECAP	I	NONE
K-4	EUMI	2122N	M	A	30	I	NONE
M-4	EUMI	0941	F	A	RECAP	I	NONE
L-4	EUMI	2123N	M	A	33	I	NONE
J-4	EUMI	1143	M	A	RECAP	I	NONE
I-4	PEMA	1323	M	J	RECAP	I	MISSEXED BEFORE
H-4	EUMI	2123N	M	A	31	I	NONE
G-4	PEMA	2124N	F	J	14	A	BOT FLY LARVAE
F-4	EUMI	2125N	F	A	31	I	NONE
D-4	EUMI	2131N	M	A	33	I	NONE
E-5	EUMI	1325	F	A	RECAP	D	NONE
G-5	PEMA	1121	M	A	RECAP	I	FLEAS
C-4	PEMA	1116	F	J	RECAP	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

BOSS PROGRESS REPORT

Sheet 2 of 3 File No: C-5-1-2-14-54

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name GREASEWOOD/SAGE Grid A Sample Period 5 Trap Night 05

Date, time traps set 4 Oct 75 1115 Date, time traps checked 5 OCT 0935

Last toe clip # used on previous day 2142 Field Analyst(s) WSH

Project 83 QA Check JB 10/9/75 WST 10/12/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-4	PGMA	0321	M	A	RECAP	I	NONE
B-6	PGMA	0314	F	A	RECAP	A	ENLARGED NIPPLES
D-6	EUMI	2131 N	M	A	35	I	NONE
H-5	PGMA	2132 N	F	J	9	I	SHOCK POOR CONDITION CLIPPED W/ NON-USED NO.
G-6	EUMI	1423	M	A	RECAP	I	NONE
I-5	EUMI	2133N	F	A	34	I	NONE
J-5	PGMA	2134N	F	J	13	I	NONE -

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 3 of 3 File No: C-5-1-2-14-55

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Grassmead/Sage Grid A Sample Period 4/5 Trap Night 5

Date, time traps set Oct 4 1975 (1115) Date, time traps checked Oct 5 1975 (0945)

Last toe clip # used on previous day 1434 Field Analyst(s) DCK

Project 82-03 QA Check JB 10/9/75 WTD/MLR

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
K-12	EUMI	1235	F	A	Recap	I	none
F-12	PEMA	0323	M	A	Recap	I	none
D-12	PEMA	1315	F	A	Recap	I	none
B-11	EUMI	0335	M	A	30	I	none
C-11	PEMA	0124	M	A	Recap	I	none
J-11	EUMI	1223	F	A	Recap	I	none
L-11	PEMA	1222	M	A	Recap	I	none
M-10	PEMA	1435N	M	A	15	I	none
I-10	MILO	1344	U	A	Recap	I	none
I-9	PEMA	1332	F	A	Recap	I	none
G-10	EUMI	1234	M	A	Recap	I	none
G-9	PEMA	1252	F	A	D	I	none
D-10	PEMA	1341	F	A	D	I	none
D-9	PEMA	1441N	M	A	14	I	none
F-8	EUMI	0451	M	A	Recap	I	none
C-8	PEMA	1410N	F	A	34	I	none
[illegible]-8	PEMA	1343	F	A	Recap	I	none
L-8	MILO	1434	U	A	Recap	I	none
M-8	PEMA	1433	M	A	Recap	I	none
K-6	PEMA	1335	M	A	Recap	I	none
I-7	PEMA	1251	M	A	Recap	I	none
G-7	EUMI	1014	F	A	33	I	none
E-6	EUMI	1153	M	A	Recap	I	none

*Key taxonomic characters, physical condition of animal, etc.

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Sheet 1 of 2 File No: C.5.1.2.15-38

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-J (Sandy) Grid B Sample Period 5 Trap Night 1

Date, time traps set 9/15 1100 Date, time traps checked 10/16 1200

~~Last toe clip # used on previous day~~ 0245 Field Analyst(s) Baber Kanty

Project 83 QA Check JB 10/9/15 W/B 178 WM

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
B-12	Eumi	0245 N	M	U	31	I	—
B-6	Eumi	0251 N	M	U	30	I	—
B-4	Eumi	3000	F	A	37	I	—
D-7	Eumi	0021	M	A	36	I	—
E-7	Eumi	0002	M	A	38	I	—
E-10	Eumi	0402	F	A	32	I	—
F-12	Eumi	0122	M	A	U	I	(0122) - missing ends of toes
I-10	NEci	3050	M	A	U	I	—
I-6	EUMi	0043	M	A	34	I	No end of tail
H-5	EUMi	0404	M	A	35	I	—
I-5	EUMi	0252 N	F	A	36	I	(0110) LITTLE HAIR ON BELLY ENDS OF TOES & TAIL
H-4	Eumi	0253 N	M	U	29	I	(0452) - ends of toes missing
H-3	PIMA	2011 N	M	U	17	I	—
K-3	EUMi	0254 N	M	A	34	I	—
M-12	EUMi	0104	M	A	35	I	H.F. 07 - white spot on head
M-6	EUMi	0255 N	F	A	34	I	
J-1	EUMi	0312 N	M	A	35	I	
A-2	EUMi	1403	F	A	30	I	Partially clipped upon capture

* use this # when inputting data into computer and later change # to original

*Key taxonomic characters, physical condition of animal, etc.

ECI

File No: C.5.1.2.15-39

Sheet 2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-J (South) Grid B Sample Period 5 Trap Night 1

Date, time traps set 9/30 - 11AM Date, time traps checked 9/31 - 12:30Pm

Last toe clip # used on previous day 0122 Field Analyst(s) Jim Stutz
mist TC 0123

Project 83-RBOSP QA Check JB 10/4/25 WT 10/12/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional Notes*
A-13	EUMI	0123N	F	V	37	I	
A-12	EUMI	0050	M	A	32	I	
A-3	PEMA	0145N	M	A	16	I	
C-12	EUMI	3020	M	A	33	I	
F-13	PEMA	0204?	M	A	17	I	bot fly larvae -3
G-8	PEMA	0154N	M	A	15	A	swollen testes
G-7	PEMA	1000	F	A	18	A	recently lactating
I-7	EUMI	0100	F	A	40	I	
J-8	EUMI	1115	M	A	41 n 46	I	recaptured, two not short enough weight to one n other
J-12	EUMI	0211N	M	J	25	I	
L-11	PETR	0212N	M	A	19	A	testes desc.
L-10	EUMI	0213N	M	V	28	I	
L-2	PEMA	0004 0214	F	A	20	A	lact.
C-2	PEMA	0214N	F	J	14	I	
P-2	EUM	0203	F	A	38	I	

*Key taxonomic characters, physical condition of animal, etc.

REPRODUCTION REPORT

ECI

Sheet 1 of 2 File No: C.5.1.215-40.

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name PJ (South) Grid B Sample Period 5 Trap Night 2

Date, time traps set 1 Oct 75 1.00 PM Date, time traps checked 2 Oct 75 11.00 AM

Last toe clip # used on previous day 0214 Field Analyst(s) SIMES

Project 83 QA Check JB 10/9/75 10/13/76 WW

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-11	PEMA	0215 N	F	J	14	I	
A-3	PEMA	0221 N	M	A	15	A	Swollen testes
C-3	EUMi	3000	F	A	RECAP	I	
C-12	EUMi	0455	M	A	30	D	
F-13	EUMi	0222 N	F	A	32	I	
F-12	EUMi	0123	F	A	RECAP	I	
G-10	EUMi	0245	M	A	RECAP	I	
F-8	EUMi	1043	M	A	33	I	
G-8	PEMA	3400	M	A	16	A	Swollen testes
F-3	SPLA	0223 N	M	A	[illegible]	I	escaped during weighing
J-3	EUMi	0224 N	F	J	31	I	
J-12	NEOT	1030	F	J	125	D	Reclip 3 toe
L-11	PETR	0225 N	M	A	17	I	
L-2	EUMi	0330	F	A (?)	34	I	
K-2	EUMi	0231 N	M	A	35	I	
H-2	NEOT	0135 (?)	F	A	131	I	Reclip #4 toe
B-2	EUMi	1403	F	A	RECAP	I	

*Key taxonomic characters, physical condition of animal, etc.

ECI

File No: C.5.1.215-41

Sheet 2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-J (South) Grid B Sample Period 5 Trap Night 2

Date, time traps set 10/1 1230 Date, time traps checked 10/2 1100

Last toe clip # used on previous day 0312 Field Analyst(s) BAKER

Project 83 QA Check JB 10/9/75 WRF 10/17/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
-13	EUMI	0313 N	M	A	34	I	—
-12	EUMI	0314 N	M	A	33	I	—
-11	EUMI	0301	F	A	37	I	—
-10	PEMA	0315 N	F	J	13	I	—
-9	PEMI	0321 N	F	A	18	I	—
-3	EUMI	0204	F	A	38	I	Dup. # 3
-6	PEMA	1000	F	A	recap	I	—
-7	PEMA	0322 N	F	J	9	I	—
-8	EUMI	0031	M	A	recap	I	—
-9	EUMI	0404	M	A	recap	I	—
-10	EUMI	1325	F	A	37	I	— from Rabbitbrush (?)
-11	PEMA	0104	M	U	recap	I	—
-3	EUMI	0043	M	A	recap	I	—
-3	PEMA	0323 N	M	A	23	I	wt. bot. fly larvae
-13	PEMI	1301	M	A	17	I	—
-6	PETR	0324 N	M	A	18	I	—
-4	PEMA	0325 N	F	J	11	I	0400 slightly clipped also
-1	PEMA	0331 N	F	A	15	I	—
-1	EUMI	1322	M	A	30	I	from rabbitbrush (?)

*Key taxonomic characters, physical condition of animal, etc.

IN PROCESS REPORT

ECI

Sheet 1 of 2 File No: C 5.1.2.15-42

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-J (South) Grid B Sample Period 5 Trap Night 3

Date, time traps set 10/2 - 1130 Date, time traps checked 10/3 - 1310

Last toe clip # used on previous day 0231 Field Analyst(s) Kennedy

Project 83 QA Check JB 10/9/25 WAT 10/13/28

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
B-8	EUMI	3005	M	A	33	I	
D-3	PEMA	0331	F	U	Recap	I	
D-6	PEMA	0123	M	A	18	A	Swollen testes (from Pitfall trap)
E-7	PEAP	0322	F	U	Recap	I	
D-8	EUMI	1003	M	A	U	I	Escape
D-11	PEMA	0215	F	J	Recap	I	
D-12	EUMI	0351N	F	A	U	I	Dead - trap in sun
H-13	PEMA	9002	M	J	14	I	Swollen rump covered with bloody scab (Bot fly larvae?)
H-11	EUMI	0222	F	A	Recap	I	
I-4	PEMA	0323	M	A	Recap	I	1 Bot fly larvae
H-3	PEMA	02[illegible]N	M	J	15	I	Red - scalp?
K-4	EUMI	0252	F	A	Recap	I	facial fur gone on right cheek
K-10	NFCI	3050	M	A	Recap	D	" " - Trap in sun
K-12	PEMA	0233N	F	J	12	I	(1) bot fly larvae on abdomen
K-2	PEMA	0235N	F	J	U	D	" "
H-2	NFCI	0135	F	A	Recap	I	
F-2	PEAP	0241N	F	U	U	D	
C-2	PEMA	0234N	M	J	10	I	

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 2 of 2 File No: C-5-1.2.15-43

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P.J (South) Grid B Sample Period 5 Trap Night 3

Date, time traps set 10/2 1130 Date, time traps checked 10/3 1310

Last toe clip # used on previous day 0331 Field Analyst(s) BAKER

Project 23 QA Check JB 10/9/25 WPT 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional Notes*
-12	EUMI	1405	F	A	4	D	—
-10	EUMI	0042	F	A	34	I	—
-6	PEMA	0332N	M	J	9	I	—
-3	PEMA	0221	M	J	recap	I	—
-8	NEOT	0333N	F	A	166	I	—
-12	PEMA	1055	F	A	14	I	—
-13	PEMA	0334N	M	A	17	I	wt bot fld.
-12	EUMI	0254	M	A	recap	D	—
-10	PEMA	0154	M	A	recap	I	—
-9	PEMA	3400	M	A	recap	I	—
-9	EUMI	0043	M	A	recap	I	—
-8	EUMI	0314	M	A	recap	I	—
-7	EUOR	0335N	M	A	51	D	collected
-6	PEMA	1000	F	A	recap	I	—
-5	EUMI	0100	F	A	recap	I	—
-12	EUMI	0341N	M	A	33	D	—
-13	PERA	1301	M	A	recap	I	—
-11	EUOR	0342N	M	A	48	D	—
-4	EUMI	0021	M	A	recap	I	—
-3	PETR	0343N	M	A	15	I	—
-2	PEMA	0004	F	A	recap	I	—
-1	EUMI	4001	M	A	34	I	—
-1	EUMI	0204	F	A	recap	I	—
-2	PEMA	0344N	F	J	13	I	—
-1	PEMA	0345N	M	J	14	I	—

*Key taxonomic characters, physical condition of animal, etc.

NBOSP #1 INSPECTION REPORT

ECI

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C.5.1.2.15-44

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name F-J (South) Grid # B Project 83 Trap Night 4

Date, time traps set 10/3-0300 Date, time traps checked 10/4-1000

Last toe clip # used on previous day 0241 Field Analyst(s) Kennedy

Trap period 5 QA Check JB 10/9/25 WH 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight (gm.)	Reprod. Status	Additional* Notes
B-6	FUMI	3000	F	A	Recap	I	—
F-6	PEAP	0322	F	A	Recap	I	—
E-8	NFCI	0277	F	A	Recap	I	—
D-9	FUMI	0093	M	A	Recap	I	—
H-10	PEMA	3400	M	U	Recap	I	—
H-9	FUMI	1115	M	A	Recap	I	—
H-8	FUMI	0252	F	A	Recap	I	—
H-7	PEMA	2122	M	A	Recap	I	From rabbit brush grid
H-5	NFCI	0135	F	A	RECAP	D	—
I-4	PEMA	0232	M	U	Recap	I	—
L-10	PEMA	0242	F	J	11	I	—
C-2	PEMA	0345	M	A	Recap	D	—

*Key taxonomic characters, physical condition of animal, etc.

2 of 2

C-5-1.2.15-45

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-5 (South) Grid # B Project 83 Trap Night 4

Date, time traps set 10/3 1300 Date, time traps checked 10/4 1000

Last toe clip # used on previous day 0357 Field Analyst(s) BAKER

Trap period 5 QA Check JB 10/9/25 WS 20/13/26

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight (gm)	Reprod. Status	Additional* Notes
A-12	PEMA	0352N	M	A	16	I	—
A-8	EUMI	0251	M	A	recap	I	—
A-6	PEMA	0332	M	J	recap	I	—
B-3	PEMA	0200	F	U	11	I	dmp ♂ mixed
C-3	EUMI	4003	M	A	34	I	—
C-13	PEMA	0334	M	U	recap	I	—
D-13	PEMA	0353N	F	J	11	I	inflamed left rear foot almost dead
F-13	PEMA	1055	F	A	recap	I	—
G-9	PEMA	0354N	F	J	12	I	—
I-7	PEMA	1000	F	U	recap	I	—
J-4	EUMI	1043	M	A	recap	I	—
J-5	EUMI	0253	M	A	recap	D	head caught in trapdoor
K-11	PEMA	0355N	M	A	15	I	—
L-12	PEMA	0233	F	A	recap	I	—
M-4	PEMA	0411 N	M	A	18	I	—
M-2	PEMA	2011	M	U	recap	I	—

*Key taxonomic characters, physical condition of animal, etc.

C.5.1.2.15 - 46

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-J (South) Grid # R Project 83 Trap Night 5

Date, time traps set 10/4 - 1000 Date, time traps checked 10/5 - 1100

Last toe clip # used on previous day 0242 Field Analyst(s) Kennedy

Trap period 5

QA Check DB 10/9/75 JWA 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight (gms)	Reprod. Status	Additional* Notes
L-11	PETR	3100	F	A	22	I	—
L-12	FUMI	0243	M	A	36	I	Fur gone from right cheek
J-9	PEMA	1011	M	A	19	I	—
E-7	PEMA	1000	F	U	Recap	I	—
F-7	PEAP	0322	F	A	Recap	I	—
C-6	FUMI	3000	F	N	Recap	I	—
C-3	PEAP	0030	F	A	8	I	Used same toe clip as 0030 FUMI
A-3	PEMA	0221	M	U	Recap	I	—
A-6	PEAP	0322	M	A	Recap	I	—
A-10	FUMI	0043	M	U	Recap	I	—
A-12	PEMA	0352	M	A	Recap	F	—

*Key ~~taxonomic characters, physical~~ condition of animal, etc.

2 of 2

C.5.1.2.15-4.7

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-J (South) Grid # B Project 83 Trap Night 5

Date, time traps set 1000 Date, time traps checked 1100

Last toe clip # used on previous day 0411 Field Analyst(s) BAKER

Trap period 5

QA Check DB 10/9/25 MM 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight gm.	Reprod. Status	Additional* Notes
D-1	PEMA	0331	F	U	recap	I	—
J-1	PEMA	0412 N	F	A	19	I	—
K-2	EUMI	1403	F	A	recap	I	—
M-8	PEMA	0413 N	M	J	15	I	—
H-4	PEMA	0232	M	J	recap	I	—
G-4	PEMA	2123	M	J	recap	I	—
H-10	PEMA	0414 N	F	J	15	I	—
H-11	EUMI	0222	F	A	recap	I	—
F-13	PEMA	0334	M	U	recap	I	—
D-9	NECI	0333	F	U	recap	I	—
D-7	PEMA	0154	M	U	recap	I	—
B-3	PEMA	0200	F	J	recap	I	—
E-11	PEMA	0215	F	J	recap	I	—

*Key taxonomic characters, physical condition of animal, etc.

[illegible] FIELD DATA

Sheet 1 of 2 File No: C.5.12.1.36

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-J NORTH SLOPE Grid "C Sample Period 5 Trap Night 01

Date, time traps set 30 Sept 75 1600 Date, time traps checked 1 OCT 75 1135

Last toe clip # used on previous day 1303 Field Analyst(s) WSH

Project 83 QA Check VB 10/9/75 WT 10/3/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-2	Eumi	1304N	M	A	31	I	none
A-8	Pema	1305N	M	J	16	I	none
A-10	Pema	1401N	M	J	16	I	none
A-12	Pema	1402N	M	A	19	A	swollen scrotum
A-13	Eumi	2100	F	A	34	I	none
B-12	EUQU	0153N	M	A	48	I	NONE
B-11	NECI	0154N	F	A	158	I	POOR CONDITION
B-10	EUMI	0155N	F	A	35	I	NONE
B-2	PEMA	0211N	F	J	12	I	NONE
C-12	EUMI	0212N	M	A	27	I	NONE
F-1	PEMA	0213N	F	J	18	I	NONE
E-5	EUMI	0214N	F	A	36	I	NONE
E-6	PEMA	0215N	F	A	U*	A	POST LACTATING GRVT ESCAPED
~~F-7~~	~~PEMA~~		~~U~~	~~U~~	~~U~~	~~U~~	~~ESCAPE GRVT~~

*Key taxonomic characters, physical condition of animal, etc.

C1 TRAP BIK
F1 TRAP BLK

ECI

File No: 6-5-1.2.14-37

Sheet 2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Pinyon Juniper/north Grid C Sample Period 5 Trap Night 1

Date, time traps set 9/30/75 (1600) Date, time traps checked 10/1/75 (1135)

Last toe clip # used on previous day 1303 Field Analyst(s) DCK

Project 83-03 QA Check JB 10/9/75 JB 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-13	EuQu	0245N	M	A	48	I	none
K-4	Eumi	0251N	M	J	26	I	none
I-4	Perma	4040	M	A	20	I	T.C. could be 0040; 0000 digit was not clipped entirely
J-8	Spla	1001	F	A	157	I	none
I-8	Neci	0252N	M	J	125	I	D
G-10	Eumi	1311	M	A	33	I	natural mark?
H-9	EuQu	0253N	F	A	50	I	none
G-8	Eumi	4002	M	A	34	I	none

*Key taxonomic characters, physical condition of animal, etc.

REQUIRED FOR FINAL REPORT

ECI

Sheet 1 of 2

File No: C-5-1-2-16-38

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-I NORTH SLOPE Grid C Sample Period 5 Trap Night 02

Date, time traps set 1 OCT 75 1135 Date, time traps checked 2 OCT 75 (1430)

Last toe clip # used on previous day 0215 Field Analyst(s) WSH

Project 83 QA Check JB 10/9/75 WSH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-2	PEMA	0221N	M	J	14	I	NONE
A-8	EUMI	2100	F?	A	RECAP	I	NONE
A-10	PEMA	0222N	F	J	13	I	NONE
A-12	PEMA	0223N	M	A	17	I	NONE.
A-13	PEMA	022(12A)	F	J	11	I	NAT CLIP? 00(12)
B-10	EUMI	0104	F	A	30	I	NONE
B-4	EUQU	4005	F?	A	53	I	NONE
C-12	SPLA	0144	M	A	185	I	NONE
F-11	EUMI	0315N	F	A	34	I	none
F-1	PEMA	0213	F	A	RECAP	I	none

*Key taxonomic characters, physical condition of animal, etc.

File No: 6.5.1.2.16-39

Sheet 2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Pinyon-Juniper/north Grid C Sample Period 5 Trap-Night 2

Date, time traps set 10/1/75 (1135) Date, time traps checked 2 Oct 75 (1430)

Last toe clip # used on previous day 0253 Field Analyst(s) DCK

Project 83-03 QA Check JB 10/4/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
M-3	PEMA	0254N	M	J	15	I	tumor on right hip
M-4	EUMI	1054	M	A	U	I	none
M-6	EUMI	0255N	M	A	32	I	none
M-12	PETR	3050	F	A	20	I	none
K-3	PEMA	41040	M	A	Recap	A	bad clip - could be 00410 initial observation
K-10	PEMA	0311N	M	J	15	I	none
J-2	PEMA	0312V	F	J	15	I	none
H-9	EUMI	0313N	F	J	27	I	none
G-9	PEMA	0314N	F	J	12	I	none
G-11	SPLA	1015	F	A	163	I	none

*Key taxonomic characters, physical condition of animal, etc.

RMRSP PROGRESS REPORT

ECI

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SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.1.2.16-40

Grid Name P-J NORTH SLOPE Grid # C Project 83 Trap Night 03

Date, time traps set 2 OCT 75 1430 Date, time traps checked 3 OCT 75 1805

Last toe clip # used on previous day 0315 Field Analyst(s) WSH

Scrap period 5 QA Check JB 10/9/75 WSH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	ANIMAL ~~Trap~~ Weight gm	Reprod. Status	Additional* Notes
K-10	PEMA	0055	M	A	18	D	NONE
I-4	PEMA	4040	M	A	RECAP	I	NONE
I-7	EUMI	0331N	F	A	31	I	NONE
G-9	PEMA	0314	F	J	RECAP	I	NONE
G-9	EUMI	u	u	u	u	u	ESCAPE
E-4	PEMA	1215	F	A	16	A	NONE

*Key taxonomic characters, physical condition of animal, etc.

[illegible] REPORT

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SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.1.2.16-41

Grid Name Pinyon Juniper/North Grid # C Project 83-03 Trap Night 3

Date, time traps set 2 Oct 75 · 1430 Date, time traps checked 10/3/75 (1805)

Last toe clip # used on previous day 0315 Field Analyst(s) DLK

Samp. period 5 QA Check JB 10/9/75 WRT 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	animal ~~Trap~~ Weight gm	Reprod. Status	Additional* Notes
M-4	EUMI	0321N	F	A	33	I	none
M-6	EUMI	0251	M	A	Recap	I	none
M-10	EUQU	0327N	M	A	49	I	none
M-12	NECI	0323N	F	A	120	I	NONE
J-13	EUMI	0324N	F	A	50	I	none
J-2	PEMA	0325N	M	A	14	D	none
H-11	PEMA	0430	M	A	22	A	Preg
F-13	EUMI	0337N	F	A	35	I	none
F-7	EUMI	0214	F	A	Recap	I	none
C-11	EUMI	0333N	F	A	32	I	none
A-1	PEMA	1145N	M	A	18	D	none
B-2	EUMI	1151N	F	A	34	I	none
C-13	EUQU	1152N	M	A	46	I	none
D-8	EUQU	1153N	M	A	40	I	none
A-6	EUMI	1214	F	A	U	D	none
A-10	PEMA	0222	F	U	Recap	I	none
A-11	PEMA	1302N	M	A	17	I	none
A-12	PEMA	1155N	F	J	10	D	none
C-12	EUQU	0253	F	A	Recap	I	none

*Key taxonomic characters, physical condition of animal, etc.

1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.1.216-42

Grid Name P-J NORTH SLOPE Grid # C Project 83 Trap Night 04

Date, time traps set 3 OCT 75 1800 Date, time traps checked 4 OCT 75 1415

Last toe clip # used on previous day 0224 Field Analyst(s) WSH

Samp. period 5

QA Check JB 10/9/75 10/13/76 WSH

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	~~Trap~~ Animal Weight gm	Reprod. Status	Additional* Notes
A-1	PEMA	0225N	M	A	15	I	NONE
A-6	NEOT	0154	♀	A	RECAP	I	NONE
A-8	PEMA	(2(3)1N	M	J	-13	I	NONE
A-10	PEMA	1305	M	A	RECAP	I	NONE
A-11	PEMA	0232N	F	A	16	A	NONE
A-12	PEMA	0223	M	A	RECAP	A	SWOLLEN SCROTUM
A-13	EUMI	0233N	M	J	28	I	NONE
B-13	PEMA	1302	M	A	RECAP	I	NONE
B-10	PEMA	1401	M	A	RECAP	I	NONE
B-2	EUMI	4100	M	A	34	I	NONE
C-1	PEMA	0234N	M	J	14	I	NONE
C-3	EUMI	0235N	M	A	35	I	NONE
D-12	PEMA	0311	M	A	RECAP	I	NONE
E-5	EUMI	1042	F	A	33	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

Sheet 2 of 2 File No: C.5.1.2.16-43

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

31%

Grid Name Pinyon Jumper/North Grid C Sample Period 5 Trap Night 4

Date, time traps set 10/3/75-(1800) Date, time traps checked 10/4/75 (1415)

Last toe clip # used on previous day 0333 Field Analyst(s) DLK

Project 83-03 QA Check JB 10/9/75 RO 10/13/75 WTT

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
H-4	EUMI	4020	M	A	31	I	none
M-12	NEOT	0323	F	A	Recap	I	caught here 10/3/75 - rat is in bad condition-ran from trap to close
K-2	PEMA	4040	M	A	Recap.	D	none
K-3	PEMA	0213	F	A	Recap	A	post lact.
K-10	PEMA	0430	F	A	Recap	A	post lact.
J-2	PEMA	0334/N	F	J	12	I	none
E-9	PEMA	0314	F	J	Recap	D	none
H-10	EUMI	0214	F	A	Recap	I	none

*Key taxonomic characters, physical condition of animal, etc.

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1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET C.5.1.2.16-44

Grid Name NORTH P-J Grid # C Project 83 Trap Night 05

Date, time traps set 4 OCT 75 1530 Date, time traps checked 5 OCT 75 1520

Last toe clip # used on previous day 0235 Field Analyst(s) WSH

Sample period 5 QA Check JB 10/9/75 WT 10/12/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	~~Trap~~ Animal Weight gm	Reprod. Status	Additional* Notes
A-8	PEMA	02(23)1	M	A	RECAP	I	NONE
A-10	PEMA	1305	M	A	RECAP	I	FLEAS
B-13	EUMI	0241N	M	A	30	I	NONE
B-10	PEMA	1401	M	J	RECAP	D	NONE
B-8	PEMA	0242N	M	A	17	I	NONE
B-6	NECI	0154	F	A	RECAP	I	CLIMBS P-J
C-2	PEMA	0221	M	J	RECAP	I	NONE
C-11	PEMA	1302	M	A	RECAP	I	NONE
G-9	SPLA	1023	♀	A	152	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

Sheet 2 of 2 File No: C.5.1.2.16-45

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Pinyon-Juniper/north Grid C Sample Period 5 Trap Night 5

Date, time traps set 10/4/75 (1530) Date, time traps checked 10/5/75 (1520)

Last toe clip # used on previous day 0334 Field Analyst(s) DCK

Project 83-03 QA Check JB 10/9/75 WW 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
M-1	EUMI	0335N	M	A	35	I	none
M-10	PEMA	0430	F	A	Recap	A	preg.
K-4	EUMI	0251	M	A	Recap	I	none
K-11	EUMI	0341N	M	A	28	I	none
J-13	EUQU	0324	F	A	Recap	I	none — most definitely EUQU. check last capture to see if species is EUQU
I-10	PEMA	0311	M	A	Recap	D	none
I-8	EUMI	1121	M	A	33	I	—
H-2	EUMI	3003	F	A	33	I	none
H-3	PEMA	0242N	M	A	14	D	none

*Key taxonomic characters, physical condition of animal, etc.

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Sheet 1 of 2 File No: C-5-1.2.17-36

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Sagebrush (North) Grid D Sample Period 5 Trap Night 1

Date, time traps set 9/30 1600 Date, time traps checked 9/31 0930

Last toe clip # used on previous day 4020 Field Analyst(s) BAKER KAMP

Project 83 QA Check JB 10/9/75 WTT 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
D-2	PEMA	3011N	F	J	12	I	—
A-3	PEMA	6341N	F	J	13	I	Bxxx partly clipped
E-4	PEMA	3020	F	A	18	I	—
A-12	NECI	4030N	F	A	196	I	—

*Key taxonomic characters, physical condition of animal, etc.

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File No: C.5.1.2.17-32

Sheet 2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Sagebrush-Nelson Grid D Sample Period 5 Trap Night 1

Date, time traps set 9/30 4PM Date, time traps checked 9/31 9:25

Last toe clip # used on previous day 1402 Field Analyst(s) Jim States, Kent Kirby
use 1403 up

Project 83-RBOSP QA Check JB 12/4/75 WTT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
H-1	PEMA	1403 N	M	U	27.4	I	
D-1	PEMA	1405 N	F	U	20	I	
H-5	PEMA	0111 W	F	U	17	I	G-6 Trap needs replacement door for K-11

*Key taxonomic characters, physical condition of animal, etc.

Sheet 1 of 2 File No: C-5-1-2-17-38

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Sagebrush (North) Grid D Sample Period 5 Trap Night 2

Date, time traps set 1 Oct 75 10:00 AM Date, time traps checked 2 Oct 75 9:00 AM

Last toe clip # used on previous day 0111 Field Analyst(s) Sates

Project RBOSP QA Check JB 12/9/75 WRT 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
K-1	PEMA	0112 N	M	J	12	I	
D-1	PEMA	0113 N	M	J	12	I	
B-1	EUMi	0114 N	M	A	33	I	
A-3	PEMA	0115 N	F	J	11	I	
H-12	PEMA	1054	M	A	16	A	Swollen testes
F-13	PEMA	4003	F	A	18	A	Bad anal infection
J-10	PEMA	2040	F	A	21	I	
L-3	PEMA	0121 N	F	J	11	I	

*Key taxonomic characters, physical condition of animal, etc.

FINAL ENGINEERING REPORT

File No: 0.5-1317-31

Sheet 2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Sagebrush (North) Grid D Sample Period 5 Trap Night 2

Date, time traps set 10/1 0930 Date, time traps checked 10/2 0915

Last toe clip # used on previous day 4030 Field Analyst(s) BAKER

Project 83 QA Check JR 10/9/75 VMT 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
J-2	PEMA	4040 N	F	A	19	I	—
D-2	PEMA	4050 N	F	A	18	I	—
A-2	PEMA	3020	F	A	recap	I	—
B-4	PEMA	0251 N	M	U	12	I	—
E-9	PEMA	0111	F	A	recap	I	—
D-3	PEMA	3011	F	U	recap	I	—
K-4	PEMA	0252 N	F	A	13	I	—

*Key taxonomic characters, physical condition of animal, etc.

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1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C-5-1.2.17-40

Grid Name Sagebrush Grid # D Project IBP Trap Night 3

Date, time traps set 10/2/75 - 0930 Date, time traps checked 10/3/75 - 1025

Last toe clip # used on previous day 0121 Field Analyst(s) Kennedy

Sample period 5 QA Check JS 10/6/75 Date 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight	Reprod. Status	Additional* Notes
D-2	PEMA	1050	F	A	21 gm	I	Puppies escaped evident but not born
B-4	PEMA	0251	M	U	Recap	I	
B-11	PEMA	0122N	U	U	U	U	Escaped
F-9	PEMA	1141	F	U	Recap	I	
J-7	PEMA	2090	F	A	Recap	I	
J-8	FUMI	0123N	F	A	33	I	Has worms

*Key taxonomic characters, physical condition of animal, etc.

Sheet 2 of 2 File No: 8.5.12.17-41

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Eagle Creek Grid D Sample Period 5 Trap Night 3

Date, time traps set 10/2 0930 Date, time traps checked 10/3 1030

Last toe clip # used on previous day 0252 Field Analyst(s) BAKER

Project 83 QA Check JB 10/3/75 WR 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
K-1	PEMA	4040	F	A	recap	I	—
E-1	PEMA	0253N	M	A	13	I	— w/ bot fly
B-1	PEMA	0241	F	U	recap	I	—
A-1	PEMA	0254N	M	J	11	I	—
A-2	PEMA	3020	F	J	recap	I	—
A-12	NECI	0301	U	U	U	U	escaped
F-13	PEMA	4003	F	J	recap	D	w/ bot fly
J-3	PEMA	0252	F	J	recap	I	—
J-13	PEMA	1021	F	A	19	I	—
I-3	PEMA	0255N	M	J	12	I	—

*Key taxonomic characters, physical condition of animal, etc.

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Sheet 1 of 2 File No: C-5123.42

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Seaforth Grid D Sample Period 5 Trap Night 9

Date, time traps set 10/3/85 1000 Date, time traps checked 10/4/85 – 1000

Last toe clip # used on previous day 0183 Field Analyst(s) Kennedy

Project 83 QA Check JB 10/7/85 DWM 10/13/85

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
B-9	PE MA	0391	F	J	Recap	I	—
B-10	PE MA	0122	M	A	15	I	—
B-12	PE MA	1034	M	U	Recap	I	—
D-13	PE MA	0124N	M	J	10	I	—
E-9	PE MA	0111	F	U	Recap	D	—
K-12	PE MA	0123N	M	A	15	I	—
L-3	PE MA	0235	M	U	Recap	I	—

*Key taxonomic characters, physical condition of animal, etc.

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C-5.1.2.17-43

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Sagebrush (North) Grid # D Project 83 Trap Night 4

Date, time traps set 10/3 . 1100 Date, time traps checked 10/4 1400

Last toe clip # used on previous day 0255 Field Analyst(s) BAKER

Sample period 5 QA Check JB 10/9/75 MT 10/13/75

Cant. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight gm	Reprod. Status	Additional* Notes
B-1	PEMA	0311 N	F	A	13	I	
2	PEMA	0317 N	M	J	12	I	
A-4	EUMI	0305	F	A	36	I	
A-13	PEMA	0313 N	M	A	17	I	
-2	PEMA	0314 N	M	A	19	I	
C-3	PEMA	4050	F	A	recap	I	
D-13	PEMA	1021	F	A	recap	N	3 vaginal vulvae
E-13	PEMA	0315 N	F	A	19	I	
E-10	EUMI	0321 N	M	U	29	I	
E-7	PEMA	2040	F	A	recap	I	
E-3	PEMA	0121	F	J	recap	I	
E-4	PEMA	0322 N	M	J	15	I	
E-11	EUMI	0322 N	F	A	31	I	

*Key taxonomic characters, physical condition of animal, etc.

1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.1.2.17-44

Grid Name Sagebrush Grid # D Project 23 Trap Night 5

Date, time traps set 10/4 1500 Date, time traps checked 10/5 1130

Last toe clip # used on previous day 0328 Field Analyst(s) BAKER

Sample period 5 QA Check JB 10/4/75 MS 10/5/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight gm	Reprod. Status	Additional* Notes
F-1	PEMA	#030	F	U	recap.	I	—
C-1	PEMA	0113	M	J	recap	I	—
B-1	PEMA	0311	F	J	recap	I	
A-13	PEMA	0313	M	U	recap	I	—
C-7	PEMA	2040	F	A	recap	D	—
F-13	PEMA	0324 M	F	J	13	I	—
H-13	PEMA	1054	M	A	recap	D	—
J-7	PEMA	0322	M	U	recap	I	—
L-3	PEMA	0252	F	J	recap	I	—
L-8	LACU	0325 M	M	A	13	D	—
L-10	PEMA	0331 N	F	A	18	I	—

*Key taxonomic characters, physical condition of animal, etc.

2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET C-5-1-2-17-45

Grid Name Sagebrush Grid # D Project 23 Trap Night 5

Date, time traps set 10/4 - 1500 Date, time traps checked 10/5 - 1630

Last toe clip # used on previous day 0125 Field Analyst(s) Kennedy

Sample period 5 QA Check JB 10/9/25 JBT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight gm	Reprod. Status	Additional* Notes
B-9	PEMA	0051	M	J	Recap	I	—
B-10	PEMA	0122	M	U	Recap	I	—
B-13	NEOT	1030	F	A	Recap	I	—
H-9	PEMA	1040	F	A	Recap	I	—
K-6	PEMA	0131N	M	J	8	I	—
K-7	LACU	0132N	M	A	20	I	—

*Key taxonomic characters, physical condition of animal, etc.

Sheet 1 of 2 File No: C-5-1.2/4-36

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mixed Brush Grid E Sample Period 5 Trap Night 1

Date, time traps set 1400 9/30/75 Date, time traps checked 1500 10/1/75

Last toe clip # used on previous day 1041 Field Analyst(s) Song

Project RROSP QA Check JB 10/1/75 WT 10/3/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-1	EUMI	3040	F	A	33	I	
F-1	PEMA	1042N	M	U	13	I	
H-1	PEMA	1043N	M	J	12	I	
L-1	PEMA	1044N	F	U	14	I	subadult? pelage changing
M-2	PEMA	1045N	M	A	18	I	
K-2	PEMA	1051N	F	A	17	A	lactating
H-2	PEMA	1052N	M	A	16	D	repro inactive
G-4	PEMA	1053N	F	A	17	D	repro inactive, ecto mites
H-6	PEMA	4002	M	A	17	I *	suffering from exposure
G-7	SPLA	1054N	M	A	146	I	
E-6	PEMA	1055N	M	U	19	I	
D-7	PEMA	0120	F	A	22	A	pregnant
C-6	LACU	1101N	F	A	17	A	lactating
A-3	PEMA	1102N	F	U	12	I	
A-2	PEMA	1200	F	A	22	A	lactating, preg?

*Key taxonomic characters, physical condition of animal, etc.

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Sheet 2 of 2 File No: C.E.I.2.18-32

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name MIXED BRUSH Grid E Sample Period 5 Trap Night 1

Date, time traps set 9/30 16 UD Date, time traps checked 10/1 1510

Last toe clip # used on previous day 0135 Field Analyst(s) REYES

Project B3 QA Check JB 10/9/25 WAR 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
J-10	PEMA	0141N	M	J	10g	I	none
H-12	PEMA	0142N	M	J	12g	I	none
H-10	PEMA	0111	F	A	19g	I	none
F-8	PEMA	0143N	M	J	11g	D	not active
F-12	PEMA	2001	M	A	17g	I	none
D-11	PEMA	1050	M	A	20g	I	none
D-9	PEMA	0145N	F	J	9g	D	none
B-12	PEMA	0151N	M	A	16g	I	none
A-10	PEMA	0152N	M	U	14g	I	none

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of 2 File No: C-5.1.2.12-38

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mixed brush Grid F Sample Period 5 Trap Night 2

Date, time traps set 1 OCT (1500) Date, time traps checked 2 OCT (1504)

Last toe clip # used on previous day 1102 Field Analyst(s) Sams / Bayles

Project 83-03 QA Check: MB 10/9/25 WT 10/9/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-1	EUMI	1103N	F	A	32	I	—
D-1	PEMA	1104N	M	U	12	I	—
K-2	PEMA	1051	F	A	RECAP	D	INAC. REPRO
H-2	PEMA	1105N	F	A	19	D	" "
D-2	PEMA	1201N	M	A	18	D	bot fly
D-3	PEMA	1202N	F	A	18	D	—
D-7	PEMA	0120	F	A	RECAP	A	LACTATING
B-2	PEMA	1203N	M	U	14	I	—
A-2	PEMA	0110	M	A	16	D	INAC. REPRO

*Key taxonomic characters, physical condition of animal, etc.

SCT

Sheet 2 of 2 File No: C.5.1.2.1K-39

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mixed Brush Grid E Sample Period 5 Trap Night 2

Date, time traps set 1 Oct 1975 (5:10) Date, time traps checked 2 Oct 1975 (1:30)

Last toe clip # used on previous day 0152 Field Analyst(s) Reyes

Project 03 QA Check JB 10/7/75 WR 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-13	EUMI	0153N	F	A	31g	I	—
A-13	EUMI	0154N	M	A	32g	I	—
M-17	EUMI	0155N	F	A	33g	I	—
L-10	EUMI	0211N	F	A	30g	D	—
L-12	PEMA	0212N	F	A	19g	D	lactating
K-10	PEMA	0213N	M	U	14g	D	—
K-8	EUMI	0214N	M	A	33g	I	urogenital bleed
J-8	EUMI	0219N	F	A	31g	I	—
J-12	EUMI	0221N	F	A	31g	D	—
H-10	PEMA	0222N	M	U	15g	I	—
G-8	EUMI	0223N	M	A	32g	I	—
F-8	PEMA	0111	F	A	16g	D	lactating
F-[illegible]	PEMA	0224N	M	U	14g	I	—
D-12	PEMA	0225N	F	A	20g	A	looks pregnant
D-11	PEMA	0231N	M	U	15g	D	—
D-9	PEMA	0232N	M	U	15g	D	—
B-12	PEMA	0151	M	U	Recap	I	—
B-11	PEMA	0233N	F	A	16g	I	—

Key taxonomic characters, physical condition of animal, etc.

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Sheet 1 of 2 File No: C.5.13.K-40

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mixed Brush Grid E Sample Period 5 Trap Night 3

Date, time traps set 2 Oct (PM) Date, time traps checked 3 Oct (PM)

Last toe clip # used on previous day 1202 Field Analyst(s) Sang

Project 83 QA Check dlb 10/3/25 MAT 10/10/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-1	EUMI	1203N	M	A	30	I	—
M-6	PEMA	1204N	F	A	18	D	
K-2	EUMI	1205U	F	A	32	I	
K-3	PEMA	1301N	M	A	14	I	
K-4	EUMI	1302N	M	A	32	A	swollen testes
J-6	LACU	1303N	F	A	20	D	pregnant
I-4	PEMA	0120	F	A	RECAP.	A	pregnant, swollen nipples
J-3	PEMA	1304N	F	J	10	I	
H-6	PEMA	1051	F	A	RECAP	I	
O-2	PEMA	1305N	M	U	12	I	
O-4	EUMI	1401N	M.	A	35	A	descended testes
C-4	EUMI	1402N	M	A	28	I	
C-3	PEMA	1403N	M	J	7	I	tiny
B-2	EUMI	1404N	F	A	32	I	very weak
A-4	PEMA	1102	F	A	RECAP	A	enlarged nipples
A-2	EUMI	1405N	M	A	30	I	very weak

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 2 of 2 File No: 6.5.1.2.14-41

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mixed Brush Grid E Sample Period 5 Trap Night 3

Date, time traps set 2 Oct 1975 (15:00) Date, time traps checked 3 Oct 1975 (16:00)

Last toe clip # used on previous day 0223 Field Analyst(s) Bowles

Project 83 QA Check JB 10/4/75 WST 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-10	PEMA	0234N	F	J	10g	D	—
D-13	PEMA	0225	F	A	recap	I	—
E-13	PEMA	0124	F	A	15g	I	—
H-13	PEMA	0235N	M	A	16g	I	—
K-13	PEMA	0241N	M	A	12g	D	—
L-13	PEMA	0242N	F	A	18g	D	lactating
M-13	PEMA	0243N	M	A	13g	D	—
M-12	EUMI	0430	F	A	37g	I	—
M-11	PEMA	0244N	M	A	13g	I	—
L-10	PEMA	0245N	M	A	12g	I	—
K-11	MILO	0251N	M	A	13g	D	—
J-8	PEMA	0252N	F	J	10g	I	—
[illegible]	SPLA	1054	M	A	recap	I	—
J-9	PEMA	0450	M	A	14g	I	—
J-10	PEMA	0141	M	A	recap	I	—
J-12	PEMA	3300	F	A	18g	I	—
H-12	PEMA	0253N	M	U	13g	I	some gravid
H-10	PEMA	0250N	M	J	5g	D	litter — weaned [illegible] ago!
H-10	PEMA	0222	M	A	recap	D	with — above
I-8	PEMA	0255N	M	U	13g	I	—
E-9	PEMA	0311N	F	J	10g	I	—
F-12	PEMA	0213N	M	U	13g	I	—
D-9	EUMI	0223	M	A	recap	I	—
C-11	PEMA	0313N	M	A	13g	D	—
B-12	PEMA	0314N	M	A	15g	D	fleas
B-10	EUMI	2300N	M	A	36g	I	—

*Key taxonomic characters, physical condition of animal, etc.

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Sheet 1 of 2 SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET File No: C.5.1.2.1K-4

Grid Name Mixed Brush Grid E Sample Period 5 Trap Night 4

Date, time traps set OCT 3, 1975 PM Date, time traps checked OCT 4, 1975 PM

Last toe clip # used on previous day 0435/ter Field Analyst(s) Sanz

Project 83 QA Check JB 10/9/75 ER 10/10/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
F-1	PEMA	0435N	F	A	14	I	
M-6	PEMA	0441N	F	A	16	D	
K-2	PEMA	0442N	F	J	11	I	
K-3	PEMA	1301	M	A	RECAP	D	
J-6	PEMA	1003	F	A	16	I	
J-5	EUMI	1013	F	A	34	I	
I-4	PEMA	0443N	M	A	15	I	
I-3	LACU	0444N	M	A	19	I	
D-6	PEMA	0120	F	A	RECAP	A	lactating.
C-11	PEMA	0445N	F	A	14	I	
B-12	PEMA	0314	M	A	RECAP	D	
B-10	EUMI	2311	M	A	RECAP	A	descended testes
B-8	PEMA	1030	F	A	20	U	
B-3	PEMA	1102	F	A	RECAP	A	lactating
A-3	PEMA	0451N	F	A	12*	D	* may be desiccated
	* check to see third 2311 is the number used in 3 OCT 75						

*Key taxonomic characters, physical condition of animal, etc.

ECI

File No: C.5.1.2.1K-47

Sheet 2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name MIXED BRUSH Grid E Sample Period 5 Trap Night 4

Date, time traps set (1600) 30 Oct 1975 Date, time traps checked Oct 4 1975 AM

Last toe clip # used on previous day 0315 Field Analyst(s): BURNS

Project 83 QA Check JB 10/4/75 WH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-10	PEMA	0322N	M	J	10g	D	—
B-13	CUMI	0323N	F	A	32g	D	—
C-13	PEMA	0225	F	A	recap	D	—
D-13	PEMA	0411N	M	J	6g	I	—
H-13	PEMA	0325N	M	J	13g	I	—
K-13	PEMA	0331N	F	A	12g	D	—
M-11	PEMA	0332N	F	A	13g	I	—
M-10	PEMA	0333N	F	A	15g	I	—
L-10	PEMA	0244	M	A	recap	I	—
K-12	SPLA	1054	M	A	recap	I	—
K-11	MILO	0334N	M	A	18g	D	—
K-10	PEMA	0291N	F	U	13g	I	—
J-9	PEMA	0141	M	A	recap	I	—
J-10	PEMA	0335N	M	U	13g	I	—
J-11	PEMA	0342N	M	U	14g	I	—
J-12	PEMA	2300	F	A	recap	I	—
F-8	PEMA	0450	M	A	recap	I	very weak
F-12	PEMA	0224	M	A	recap	I	—
D-12	PEMA	0124	F	A	recap	I	—

Key taxonomic characters, physical condition of animal, etc.

[illegible]

(GCI)

Sheet 1 of 2 File No: 0.5.1.218-44

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mixed brush Grid E Sample Period 5 Trap Night 5

Date, time traps set 4 Oct PM Date, time traps checked 5 Oct PM

Last toe clip # used on previous day 0342/0451 Field Analyst(s) Sung

Project 83 QA Check JB 12/9/85 WO 10/17/78

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-1	PEMA	0452N	M	A	18	I	Juv
K-3	PEMA	1014	F	A	Recap	D	
I-6	PEMA	0453N	F	A	16	I	
I-5	PEMA	0454N	M	A	15	D	
I-4	PEMA	4002	M	A	Recap	I	
H-6	FUMI	0223	M	A	33	I	
A-3	FUMI	1402	M	A	Recap	I	

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 2 of 2 File No: C.S.1.2.18-45

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mixed Pond Grid E Sample Period 5 Trap Night 5

Date, time traps set 4 Oct 1975 16:00 Date, time traps checked 5 Oct 1975

Last toe clip # used on previous day 0342 / 1045 Field Analyst(s) Rueter

Project 83 QA Check JB 10/9/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-10	PEMA	0343N	M	J	14g	D	—
B-10	PEMA	1030	M	A	18g	D	—
B-12	PEMA	0151	M	A	recap	I	—
C-10	PEMA	0445	F	A	recap	D	—
B-8	PEMA	0344N	F	A	12g	I	—
D-12	PEMA	~224	M	A	recap	I	—
D-13	EUMI	0345N	F	A	35g	I	—
F-12	EUMI	0351N	M	A	29g	I	—
F-8	PEMA	0255	M	A	recap	I	—
H-13	PEMA	0352N	F	J	11g	I	—
J-12	PEMA	2300	F	A	recap	D	—
J-8	PEMA	0353N	F	J	11g	I	—
K-11	PEMA	2124N	M	A	11g	D	—
K-13	PEMA	2125N	M	A	12g	D	—
M-10	PEMA	2126N	M	J	11g	D	—
M-12	EUMI	0354N	M	A	34g	I	—

Key taxonomic characters, physical condition of animal, etc.

Sheet 1 of 1 File No: C-5-1219-32

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Douglas-fir Grid F Sample Period 5 Trap Night 1

Date, time traps set 1300 9/30 Date, time traps checked 1200 10/1

Last toe clip # used on previous day 0043/0402 Field Analyst(s) Sony, Reyes

Project 83 QA Check JB 10/9/25 VH 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
I-4	CLGA	2004	F	A	22	D	ACTIVE - LACTATING
J-1	EUMI	0044N	F	A	36	I	
F-1	EUMI	0045N	F	A	38	I	
D-4	PEMA	0051N	M	U	13	I	
F-12	EUMI	0052N	M	A	32	I	SUFFERING FROM EXPOSURE
H-12	PEMA	0053N	F	A	16	D	ACTIVE - LACTATING
F-9	CLGA	0403N	F	U	11	I	
H-10	EUMI	0404N	M	A	36	I	
H-9	PEMA	0405N	M	U	18	I	
J-8	CLGA	2000	F	A	20	I	PRETTY BIG
	"	"					
	"	"					

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of 1 File No: C.S.1.2.14-33

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Douglas-fir Grid F Sample Period 5 Trap Night 2

Date, time traps set 1 OCT (1200) Date, time traps checked 2 OCT (1200)

Last toe clip # used on previous day 0053/0425 Field Analyst(s) Sawyer / Reeves

Project 83-03 QA Check CB 10/9/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
F-1	EUMI	0054N	M	A	31	I	—
D-9	EUMI	0304	M	A	32	I	—
J-7	CLGA	2000	F	A	RECAP	A	LACTATING
F-9	CLGA	0110N	U	U	11	I	—
H-9	PEMA	0120N	F	A	15	I	—

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of 1 File No: C.5.1.219-31

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Douglas fir Grid F Sample Period 5 Trap Night 3

Date, time traps set 20 Oct 1975 (1100) Date, time traps checked 30 Oct 1975 (12:30)

Last toe clip # used on previous day 0054/0120 Field Analyst(s) Reyes / Sang E

Project 83 QA Check JB 12/9/75 WT 10/3/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
F-9	CLGA	0103	F	J	RECAP.	I	very weak
F-10	EUMI	0130N	M	A	35	I	—
G-8	PEMA	0140N	F	A	12	I	subadult?
G-9	EUMI	0150N	F	A	36	I	—
I-9	PEMA	0120	F	A	RECAP	II	—
J-6	PEMA	0105	M	A	RECAP	I	—
J-5	PEMA	0220N	M	A	16	I	—

*Key taxonomic characters, physical condition of animal, etc.

ECI

File No: C.F.1.2.19-25

Sheet 1 of 1

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Douglas-fir Grid F Sample Period 5 Trap Night 4

Date, time traps set 3 Oct (12:30) Date, time traps checked 4 Oct

Last toe clip # used on previous day 0054 Field Analyst(s) Sam, Reyes

Project 93-03 QA Check JB 10/9/95 WDT 10/13/95

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
J-1	PEMA	0055N	M	A	15	I	
I-9	PEMA	0905	M	A	RECAP	I	
J-6	PEMA	0101N	F	A	16	A	SWOLLEN VULVA
F-9	PEMA	0230N	F	J	12	I	
H-9	PEMO	0250N	F	A	15	I	very weak
H-7	CLGA	2000	F	A	RECAT	I	

Key taxonomic characters, physical condition of animal, etc.

Sheet 1 of 1 File No: 5.5.12.M-36

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Douglas-fir Grid F Sample Period 5 Trap Night 5

Date, time traps set 4 Oct 1975 (1230) Date, time traps checked 5 OCT 75 (1030)

Last toe clip # used on previous day 0107 Field Analyst(s) Sam / Renee

Project 83 QA Check JB 12/4/75 DM 10/12/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
J-9	PEMA	0102N	F	A	13	I	—
H-12	PEMA	2050N	M	A	14	I	—
J-10	MILO	2100N	F	A	22	A	Lactating
E-6	CLGA	0110	M	A	RECAP	D	—
E-10	PEMA	0310N	M	A	16	I	—
J-7	CLGA	0320N	M	J	10	D	—
J-5	PEMA	0220	M	A	Recap	I	—

*Key taxonomic characters, physical condition of animal, etc.

ECI

File No: C.F.1.2.20-7-2

Sheet 1 of 1

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Aspen Grid G Sample Period 5 Trap Night 1

Date, time traps set 1100 9/30 Date, time traps checked 1000 10/1

Last toe clip # used on previous day 0014 /0220 Field Analyst(s) Sanji, Reyes

Project 63 QA Check JB 10/9/75 WR 10/9/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
I-10	CLGA	0015N	F	A	12	D	INACTIVE REPRO.
G-9	CLGA	0230N	F	U	11	I	none
D-6	CLGA	0240N	F	J	9	I	none

*Key taxonomic characters, physical condition of animal, etc.

Sheet 1 of 1 File No: C.5.1.2.20-21

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name ASCOM Grid G Sample Period 5 Trap Night 2

Date, time traps set 1 Oct 1975 Date, time traps checked 2 Oct 1975 09:20

Last toe clip # used on previous day 0015/6740 Field Analyst(s) Reyes/Sanz

Project 23 QA Check AB 10/9/75 TWT 10/10/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	o.k. samp Additional* Notes
H-1	PEMA	0021N	M	A	16	I	—
H-3	MILO	0022N	M	A	18	I	—
J-4	CLGA	0023N	U	U	12	I	—
J-6	CLGA	0024N	F	A	15	D	INAC. REPRO
H-12	CLGA	0025N	U	A	18	I	—
H-8	PEMA	0250N	M	J	13	I	—

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of 1 File No: C-5-1.2.20-3D

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Aspen Grid G Sample Period 5 Trap Night 3

Date, time traps set 2 Oct. 0920 Date, time traps checked 3 OCT 0900

Last toe clip # used on previous day 0015/0250 Field Analyst(s) Sam, Renee

Project 83-03 QA Check JB 10/9/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
H-1	PEMA	0021	M	A	RECAP.	D	
H-2	CLGA	0031N	M	A	15	D	
H-2	MILO	0032N	M	A	17	D	
J-7	PEMA	0033N	M	A	15	I	
J-10	PEMA	0034N	M	A	16	D	
D-9	EUMI	0103	F	A	42	A	pregnant? (big belly)
D-6	EUMI	0035N	F	A	32	I	
I-7	PEMA	0310N	M	A	15	I	
G-8	CLGA	0230	F	A	RECAP	I	fleas
F-5	EUMI	0320N	M	J	27	I	
H-9	PEMA	3000	F	A	—	I	3rd toe marked, escaped
F-6	EUMI	0330N	U	A	34	I	?

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of 1 File No: 6.5.1.2.20-31

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Aspen Grid G Sample Period 5 Trap Night 4

Date, time traps set 30 Sept 0900 Date, time traps checked 4 Oct 0900

Last toe clip # used on previous day 0034/0330 Field Analyst(s) Sanz, Reyes

Project BE-03 QA Check [illegible] 10/9/75 [illegible] 10/12/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
D-4	EUMI	0035N	M	A	34	D	
H-2	PEMA	0041N	M	J	12	I	
H-3	MILO	0042N	M	A	16	I	
J-10	CLGA	0043N	F	U	12	I	
I-9	PEMA *	0304N	F	A	13	I	* numbers already used
J-10	CLGA	0350N	M	U	11	D	
H-2	PEMA	3000	F	A	RECAP	A	nipples swollen
H-6	CLGA	0410N	M	J	10	D	
F-5	CLGA	0013	M	A	14	I	
D-6	CLGA	0240	F	A	12	I	
D-5	EUMI	0035	M	A	RECAP	I	
	*	this	may	have	been	clipped	right
		but	only	recorded	wrong,	according	
		to	CAM				

*Key taxonomic characters, physical condition of animal, etc.

ECI

File No: C-5-1-2-20-32

Sheet 1 of 1

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Aspen Grid C Sample Period 5 Trap Night 5

Date, time traps set 4 Oct 75 AM Date, time traps checked 5 Oct 75 AM

Last toe clip # used on previous day 0043/0410 Field Analyst(s) Sam Reyes

Project 63-03 QA Check AB 10/8/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional Notes*
D-4	CLGA	2159N	M	A	13	D	
H-2	PEMA	0044N	M	A	15	I	
G-4	EUMI	0320	M	A	RECAP	I	
I-9	PEMA	0310	M	A	RECAP	I	
H-9	PEMA	3000	F	A	RECAP	D	
H-6	PEMA	0033	M	A	RECAP	I	
G-10	CLGA	0420N	F	A	13g	I	
F-10	PEMA	0311N	M	A	18g	I	
F-6	CLGA	0013	M	A	RECAP	I	
F-5	PEMA	0041	M	U	RECAP	I	
E-6	PEMA	0430N	M	U	12g	I	
D-9	EUMI	0330	F	A	RECAP	I	

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of 1 File No: 6.5.1.2.1-23

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Bottomland Meadow Grid 1 Sample Period 5 Trap Night 1

Date, time traps set 30 Sept 75 6.00 PM Date, time traps checked 1 Oct 75 6:00 PM

Last toe clip # used on previous day 8015 Field Analyst(s) Slater, Kautz, Jaster

Project E3 QA Check JB 10/9/75 mkt 10/10/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
	NO CAPTURES						

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of 1 File No: C.5.1.2.1-24

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Bottomland Hardwood Grid 1 Sample Period 5 Trap Night 2

Date, time traps set 10/1 1800 Date, time traps checked 10/2 1706

Last toe clip # used on previous day 0015 Field Analyst(s) HOTR

Project 53 QA Check JB 10/9/75 WW 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-3	PEMA	0220	M	A	16	A	—

*Key taxonomic characters, physical condition of animal, etc.

ECI

1 of 1

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.S.1.2.1.25

Grid Name Rattlesnake Meadow Grid # 1 Project 83 Trap Night 3

Date, time traps set 10/2 1630 Date, time traps checked 10/3 1210

Last toe clip # used on previous day 0012 Field Analyst(s) [illegible]

trap period 5

QA Check JB 10/9/75 WTT 10/10/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight	Reprod. Status	Additional* Notes
1-3	PEMA	0013	M	J	11	D	
9-8	PEMA	0010	F	A	14	I	

1 of 1

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.1.2.1-26

Grid Name Bottomland Meadow Grid # 1 Project E3 Trap Night 4

Date, time traps set 10/3 1730 Date, time traps checked 10/4 1645

Last toe clip # used on previous day D230 Field Analyst(s) BAKER

Trapping period 5 # QA Check JB 10/9/75 WR 10/10/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight gm	Reprod. Status	Additional* Notes
A-3	PEMA	0240	F	J	10	I	—

*Key taxonomic characters, physical condition of animal, etc.

1 of 1

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.12.1-27

Grid Name Bottomland Meadow Grid # 1 Project 73 Trap Night 5

Date, time traps set 10/1 - 1600 Date, time traps checked 10/3 - 1600

Last toe clip # used on previous day 029M Field Analyst(s) Feaver

Sampling period 5 QA Check dlb 10/5/05 WF 10/10/05

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight gm	Reprod. Status	Additional* Notes
A-3	PEMA	022O	M	J	Recap	D	Trap weight
A-8	PEMA	002IN	M	J	9	I	—
A-13	PEMA	002ON	F	A	13	D	—

*Key taxonomic characters, physical condition of animal, etc.

File No: C-1.2.3-21

Sheet 1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name BIG SAGEBRUSH (FLAT) Grid # 2 Sample Period 5 Trap Night 01

Date, time traps set 30 Sept 75 0930 Date, time traps checked 1 OCT 75 0815

Last toe clip # used on previous day 0301 Field Analyst(s) WASH

Project 83 QA Check: DS 10/9/75 WAT 10/10/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-3	EUMI	0040	M	A	36	I	NONE
A-5	EUMI	0101	M	A	31	I	NONE SAM?
A-6	SPTR	0302N	F	J	69	I	NONE one day/ut
A-9	SPTR	0052	M	J	73	I	NONE 45 days/ut
A-11	PEMA	0303N	F	J	11	I	NONE
~~A-12~~	~~SPTR~~						

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 2 of 2 File No: C.5.1.2.3-22

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name [illegible] (Flat) Grid 2 Sample Period 5 Trap Night 1

Date, time traps set 9/30/75 (0730) Date, time traps checked 10/1/75 (0815)

Last toe clip # used on previous day 0301 Field Analyst(s) DK

Project 83-03 QA Check JB 10/9/75 WRT 10/12/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-10	Eumi	0030	F	A	31	I	none
B-9	Eumi	0044	M	A	30	I	none

*Key taxonomic characters, physical condition of animal, etc.

(EC1)

File No: C.5.1.2.3-23

Sheet 1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name SAGEBRUSH (FLAT) Grid 2 Sample Period 5 Trap Night 02

Date, time traps set 1 OCT 75 C&S Date, time traps checked 2 OCT 75 0830

Next toe clip # used on previous day 0303 Field Analyst(s) VOS HT

Project 83 QA Check JS 10/4/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-1	EUMI	0040	M	A	RECAP	I	NONE
A-2	EUMI	0005	M	A	30	I	NONE
A-6	SPTR	0302	F	A	RECAP	I	NONE
A-8	EUMI	0030	F	J	30	I	NONE anc?
A-12	PEMA	0303	F	J	RECAP	I	NONE
A-13	SPTR	0304N	F	A	57	I	NONE

*Key taxonomic characters, physical condition of animal, etc:

PROOF PROGRESS REPORT

ECI

Sheet 2 of 2 File No: C-5123-24

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Sagebrush/Plot Grid 2 Sample Period 5 Trap Night 2

Date, time traps set 10/1/75 (0915) Date, time traps checked 10/2/75 (0930)

Last toe clip # used on previous day 0301 Field Analyst(s) DCK

Project 23-03 QA Check KB 10/9/75 WTT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-1	PEMA	illegible	F	A	30	I	none
C-3	PEMA	illegible	M	I	19	I	none
C-9	PEMA	illegible	M	A	Escape	I	none

*Key taxonomic characters, physical condition of animal, etc.

1 of 2

C-5-123-25

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name SAGEBRUSH FLAT Grid # 2 Project 83 Trap Night 03

Date, time traps set 2 OCT 75 0915 Date, time traps checked 3 OCT 75 0845

Last toe clip # used on previous day 0304 Field Analyst(s) WSH

Sampling period 5 QA Check JB 10/4/75 WJT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	ANIMAL ~~Trap~~ Weight g/a	Reprod. Status	Additional* Notes
A-2	EUMI	0305N	F	A	31	D	NONE
A-3	EUMI	0101	M	A	RECAP	I	NOOS SPM?
A-5	SPTR	0302	F	A	RECAP	I	NONE
A-7	EUMI	00(35)2	M	A	32	I	NAT CLIP 0050
A-8	SPTR	0052	M	A	RECAP	I	NONE
A-12	EUMI	0401N	M	A	30	I	NONE
A-13	EUMI	0402N	M	A	32	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

File No: C-5123-21

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Sagebrush Flat Grid 2 Sample Period 5 Trap Night 3

Date, time traps set 10/2/75 (0915) Date, time traps checked 10/3/75 (0945)

Last toe clip # used on previous day 1040 Field Analyst(s) DCK

Project 21-03 QA Check MB 10/9/75 WDT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-1	EUMI	1050N	F	A	33	I	none
C-2	EUMI	0010	M	A	Recap	D	none
C-4	EUMI	0013	F	A	32	D	none
C-7	PEMA	1100N	F	J	12	I	none
C-8	EUMI	1200N	M	J	29	I	none
C-9	EUMI	1300N	F	A	30	I	none
C-12	EUMI	0102	F	A	35	I	none
B-10	EUMI	0014	M	A	Recap	I	none
B-8	EUMI	1400N	M	A	31	I	none

*Key taxonomic characters, physical condition of animal, etc.

Sheet 1 of 2 File No: C.5.1.2.3-27

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name SAGEBRUSH FLAT Grid 2 Sample Period 5 Trap Night 04

Date, time traps set 3 OCT 75 0845 Date, time traps checked 4 OCT 0850

Last toe clip # used on previous day 0402 Field Analyst(s) WSH

Project 83 QA Check JB 10/9/75 WTT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-1	EUMI	0005	M	J	RECAP"	D	NONE
A-2	EUMI	0403N	F	A	135	A	SWOLLEN NIPPLES
A-3	EUMI	0045	M	A	UL	I	NONE ESCAPED FM WT BAG
A-6	PMMA	0303	F	J	RECAP	I	NONE
A-13	EUMI	0102	F	A	RECAP	I	NONE
B-6	EUMI	0044	M	A	RECAP	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of 2 SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET File No: 6512.3-28

35%

Grid Name Saybrook/Flat Grid 2 Sample Period 5 Trap Night 4

Date, time traps set 10/8/75 (0800) Date, time traps checked 10/12/75 (0830)

Last toe clip # used on previous day 1100 Field Analyst(s) DCE

Project P3-A3 QA Check JHS 10/9/75 WTT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-2	PEMA	2001V	M	A	33	D	none
C-3	PEMA	0003	F	A	31	D	none
C-11	PEMA	0002N	M	A	34	I	none
C-12	SPTR	0302	F	A	Recap	I	none
B-10	PEMA	2003V	F	A	15	I	none

*Key taxonomic characters, physical condition of animal, etc.

(ECI)

1 of 2

C.5.1.2.3-29

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name SAGEBRUSH FLAT Grid # 2 Project 83 Trap Night 05

Date, time traps set 4 OCT 75 0900 Date, time traps checked 5 OCT 75 0900

Last toe clip # used on previous day 0403 Field Analyst(s) WSH

Sampling period 5 QA Check JB 10/9/75 WST 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	ANIMAL ~~Trap~~ Weight gm.	Reprod. Status	Additional* Notes
A-3	EUMI	0044	M	A	RECAP	I	NONE
A-5	SPTR	0052	M	A	RECAP	I	NONE
A-6	PMA	2003	F	J	RECAP	I	NONE
A-7	EUMI	0101	F	A	RECAP	I	SEX ERROR POSSIBLE
A-8	EUMI	1200	M	A	RECAP	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

Sheet 2 of 2 File No: C-5-12.3-3D

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Basin Loop Grid 2 Sample Period 5 Trap Night 5

Date, time traps set 10/4/75 0900 Date, time traps checked 10/5/75 (0900)

Last toe clip # used on previous day 2003 Field Analyst(s) DCK

Project SI-03 QA Check [illegible] 10/9/75 WH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-2	PUMI	1070	F	A	Recap	I	none
C-3	PUMI	0045	M	A	Recap	I	none
C-4	PUMI	2004	F	A	21	—	none
C-7	SPEB	0302	F	A	Recap	I	none
C-11	PUMI	0070	F	A	Recap	I	none
C-13	PUMI	0401	M	A	Recap	I	none

*Key taxonomic characters, physical condition of animal, etc.

BPOSP PROGRESS REPORT

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File No: C 5.1.2.7-29

Sheet 1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Pit + ash Grid 3 Sample Period 5 Trap Night 1

Date, time traps set 9/30/75 1300 Date, time traps checked 10/1/75 1600

Last toe clip # used on previous day 1315 Field Analyst(s) Stokes, Sanders

Project 83 QA Check JB 10/9/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-1	EUMI	1321(5)	F	A	32	I	[illegible]
A-2	PEMA	1231	M	A	19	I	
A-3	EUMI	3005	M	A	32	I	
B-5	PEMA	1235N	F	J	12	I	
A-5	PEMA	1225	M	A	18	I	
B-7	MILO	1341N	M	J	16	I	
A-8	PEMA	1342N	F	A	22	A	Defo (nest)

*Key taxonomic characters, physical condition of animal, etc.

Sheet 2 of 2 File No: CE-12-7-30

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Baldwin Woods Grid 3 Sample Period 5 Trap Night 1

Date, time traps set 9-30 1000 PM Date, time traps checked 10-1 0900 PM

Last toe clip # used on previous day 2121 Field Analyst(s) Parker

Project SE QA Check JB 10/4/75 10/15/76 WDS

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-13	PEMA	2122N	M	J	16	I	—
A-12	PEMA	0001	M	A	20	I	recaptured 2021 - dup.
B-11	PEMA	2123N	M	A	19	I	WJ bot fly larvae
B-9	EUMI	2000	F	A	35	I	

*Key taxonomic characters, physical condition of animal, etc.

Sheet 1 of 2 File No: C-5-1.2.7-31

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Robichaux Grid 3 Sample Period 5 Trap Night 2

Date, time traps set 1 Oct 75 3130 PM Date, time traps checked 2 Oct 75 1:30 PM

Last toe clip # used on previous day 1342 Field Analyst(s) States

Project 83 QA Check JB 10/9/75 WT 10/12/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
B-5	PEMA	1343N	F	J	12	I	
B-7	PEMA	1225	M	J	RECAP	I	
C-7	PEMA	1435	M	A	19	I	
C-8	PEMA	1344N	F	J	13	I	
B-8	PEMA	1351N	F	A	16	I	
B-9	PEMA	1254	M	A	21	I	~~BOTFLY~~ Botfly
C-9	PEMA	1450	F	A	21	I	~~Botfly~~
C-10	PEMA	1352N	M	A (?)	17	I	Botfly

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 2 of 2 File No: C-5127-32

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Rabbitbrush Grid 3 Sample Period 5 Trap Night 2

Date, time traps set 10/1 1730 Date, time traps checked 10/2 1330

Last toe clip # used on previous day 2123 Field Analyst(s) BAKER

Project 82 QA Check JB 10/9/25 WT 10/12/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-1	PEMA	2126(14)N	M	A	14	I	—
A-2	PEMA	2125 N	M	A	19	I	—
A-4	PEMA	1225	F	J	recap	I	—
A-5	PEMA	1231	M	A	recap	I	—
A-7	MILO	1341	M	A	recap	D	—
A-11	PEMA	2131 N	M	J	13	I	—
C-13	PEMA	1334	M	A	17	I	—

*Key taxonomic characters, physical condition of animal, etc.

FINDING (DISCLOSE REPORT)

ECI

1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.1.2.7-33

Grid Name Rabbitbrush Grid # 3 Project 83 Trap Night 3

Date, time traps set 10/3 - 1745 Date, time traps checked 10/4 - 1300

Last toe clip # used on previous day 2121 Field Analyst(s) Kennedy

Sampling period 5 QA Check JB 11/6/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Trap Weight	Reprod. Status	Additional* Notes
C-6	PF M-A	2132N	M	J	13	I	Runs
C-7	PF M-A	1435	M	A	Recap	D	
C-12	PFMA	2133N	M	J	13	I	
C-13	PFMA	1334	M	U	Recap	I	
A-13	PFMA	2134N	M	A	15	I	

*Key taxonomic characters, physical condition of animal, etc.

sheet 2 of 2

C-5.1.27-34

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Rabbitbrush Grid # 2 Project 83 Trap Night 3

Date, time traps set 10/2 1330 Date, time traps checked

Last toe clip # used on previous day 1252 Field Analyst(s) RAGR

trap period 5 QA Check LB 10/3/25 MT 10/10/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Trap Weight gm.	Reprod. Status	Additional* Notes
A-2	PEMA	212-	M	A	[illegible]	I	—
A-3	[illegible]	1321	M	A	[illegible]	I	—
A-4	[illegible]	1353 M	M	J	14	I	—
B-5	PEMA	2127	M	A	[illegible]	I	—
A-7	PEMA	1243	F	A	[illegible]	I	—
B-8	PEMA	1321	F	J	[illegible]	I	—
A-10	[illegible]	1354 M	F	A	34	I	—
B-10	PEMA	1450	F	A	[illegible]	D	—
A-11	PEMA	1254	M	A	[illegible]	I	—

*Key taxonomic characters, physical condition of animal, etc.

1 of 2

C.5.1.2.7-35

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Robinhood Grid # 3 Project C2 Trap Night 4

Date, time traps set 10/2 1600 Date, time traps checked 10/4 1800

Last toe clip # used on previous day 1354 Field Analyst(s) ENFER

Sampling period 5 QA Check JB 10/9/75 WR 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight sm	Reprod. Status	Additional* Notes
A-1	PEMA	1355N	M	A	15	I	—
A-2	PEMA	1231	M	A	recap	I	—
A-3	PEMA	1411N	F	A	15	I	—
A-4	PEMA	1253	M	A	recap	I	—
A-5	PEMA	1343	F	A	recap	I	—
A-8	PEMA	1225	M	A	recap	I	—
A-10	PEMA	1412N	F	A	14	I	—
A-11	PEMA	1413N	F	A	15	I	—

*Key taxonomic characters, physical condition of animal, etc.

RBOSP PROGRESS REPORT

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C-5.12.7-36

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Rabbithash Grid # 3 Project E3 Trap Night 4

Date, time traps set 10/3 - 1600 Date, time traps checked 10/4 - 1300

Last toe clip # used on previous day 2134 Field Analyst(s) [illegible]

Sampling period 5 QA Check [illegible] 10/4/25 [illegible] 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight gm	Reprod. Status	Additional* Notes
C-9	PE MI	3[illegible]	F	J	[illegible]	I	—
C-12	PE MA	2135N	M	A	18	I	—
A-13	PE MA	2141N	M	A	19	I	—
C-2	PEMA	U	U	U	U	U	Escaped

*Key taxonomic characters, physical condition of animal, etc.

1 of 2

C.5.1.2.7-37

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name [illegible] Grid # [illegible] Project [illegible] Trap Night [illegible]

Date, time traps set 10/4 ~ 1330 Date, time traps checked 10/5 [illegible]

Last toe clip # used on previous day 1432 Field Analyst(s) Kennedy

Sampling period 5 QA Check [illegible] 10/9/25 ust 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight	Reprod. Status	Additional* Notes
C-12	PE	1432	M	J	13	I	—
C-13	PE	1224	M	U	Recap	I	—
A-13	PE	2142	F	A	20	I	—
A-12	PE	2021	M	A	19	I	—
A-11	PE	1352	M	U	Recap	I	Solo on corridor

*Key taxonomic characters, physical condition of animal, etc.

2 of 2

C 5.1.2.7-3X

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Cabin Creek Grid # 3 Project EP Trap Night 5

Date, time traps set 10/4 1330 Date, time traps checked 10/5 1430

Last toe clip # used on previous day 1413 Field Analyst(s) FBAER

Sampling period 5 QA Check AB 10/9/25 WP 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight	Reprod. Status	Additional* Notes
A-1	PEMA	1414 N	M	A	18	I	—
A-2	PEMA	1411	F	A	recap	D	—
A-3	PEMA	1231	M	A	recap	I	—
B-1	PEMA	1225	M	A	recap	I	—

*Key taxonomic characters, physical condition of animal, etc.

Sheet 1 of 2 File No: C5120-22

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Pump Junction/Rock Wash Grid 4 Sample Period 5 Trap Night 1

Date, time traps set 10-1-75 9:00 am Date, time traps checked 10-1-75 5:00 pm

Last toe clip # used on previous day 0053 Field Analyst(s) [illegible]

Project 83 Bag wt - 10 QA Check JB 10/9/75 WFF 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-11	ELNU	0054N	F	A	52	I	—
C-7	PEMA	0055N	F	A	16	A	—

*Key taxonomic characters, physical condition of animal, etc.

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Sheet 2 of 2 File No: C.5.1.2.10.28

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Fir Island North Grid 4 Sample Period 5 Trap Night 1

Date, time traps set 9/30/25 1400 Date, time traps checked 10/1/25 1200

Last toe clip # used on previous day 0053 Field Analyst(s) BAKER

Project 23 QA Check B 10/9/25 MT 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
B-4	PEMA	1003	M	J	13	I	—

*Key taxonomic characters, physical condition of animal, etc.

File No: C.5.1.2.10-29

Sheet 1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Pad / Mixed Brush Grid 4 Sample Period 5 Trap Night 2

Date, time traps set 10/1 1700 Date, time traps checked 10/2 1300

Last toe clip # used on previous day 1002 Field Analyst(s) [illegible]

Project E3 QA Check JB 10/4/76 MT 10/10/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-13	EUSH	4000	F	A	48	I	—
C-2	PEMA	1004 N	M	A	12	I	—
C-2	PEMA	1005 N	F	A	15	A	Sub-Mon. 1:11A

*Key taxonomic characters, physical condition of animal, etc.

Sheet 2 of 2 File No: C-5.1-2.15-30

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Pt. Willard Beach Grid 4 Sample Period 5 Trap Night 2

Date, time traps set 10/1 1200 Date, time traps checked 10/2 1300

Last toe clip # used on previous day 0055 Field Analyst(s) Stefes

Project 83 QA Check JB 10/6/25 WT 12/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-5	PEMA	1002	M	4	19	I	

*Key taxonomic characters, physical condition of animal, etc.

ECI

C.5.1.2.10-31

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Pinyon-Juniper / mixed brush Grid # 4 Project 83 Trap Night 03

Date, time traps set 2 OCT 75 (1430) Date, time traps checked 3 OCT 75 1720

Last toe clip # used on previous day 1005 Field Analyst(s) WJH

Sample period 5 QA Check JB 10/9/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	ANIMAL Weight (gm)	Reprod. Status	Additional* Notes
A-9	PEMA	0055	F	A	14	D	ACTIVE LACTATION HEAT KILL
A-13	PEMA	1010N	F	A	17	A	POST LACTATION

*Key taxonomic characters, physical condition of animal, etc.

Sheet 2 of 2 File No: 6.5.1.2.10-32

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Pinyon-Juniper/mixed brush Grid 4 Sample Period 5 Trap Night 3

Date, time traps set 10/2/75 (1430) Date, time traps checked 10/3/75 (1720)

Last toe clip # used on previous day 1005 Field Analyst(s) DCK

Project 83-03 QA Check JS 12/4/75 WAT 12/12/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-8	PEMA	1102N	F	J	10	I	none
C-5	SUMI	1120N	F	J	22	I	none
B-5	PEMA	1130N	M	A	19	D	none
B-1	PEMA	1003	M	J	Recap	I	none
C-2	PEMA	1021	M	J	Recap	D	none
A-1	EUQU	1100N	F	A	45	I	none

*Key taxonomic characters, physical condition of animal, etc.

ECI

C-5-1-2-10-33

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-J/MIXED BRUSH Grid # 4 Project 83 Trap Night 04

Date, time traps set 3 OCT 75 1730 Date, time traps checked 4 OCT 75 1240

Last toe clip # used on previous day 1010 Field Analyst(s) WSH

Sample period 5 QA Check JB 10/6/75 WS 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	ANIMAL ~~Trap~~ Weight gm	Reprod. Status	Additional* Notes
C-8	PEMA	1020H	F	J	7	I	NONE
C-7	PEMA	4300	M	A	RECAP	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

Sheet 2 of 2

File No: C-5-1210-34

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name* Mixed Grass Grid 4 Sample Period 5 Trap Night 4

Date, time traps set 10/3/25 1730? Date, time traps checked 10/4/25 1340

Last toe clip # used on previous day 1010 Field Analyst(s) 10/4/25 DCK

Project 53-03 QA Check JB 10/7/25 MT 10/31/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
B-8	PEMA	1011N	M	A	15	I	none
A-6	PEMA	1012N	M	J	9	I	none
B-5	PEMA	1013N	F	A	15	I	none
C-7	PEMA	1014N	F	A	16	I	none

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of 2 File No: 6.5.1.2.10-35

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name RJ/KING SMASH Grid 4 Sample Period 5 Trap Night 05

Date, time traps set 4 OCT 75 1200 Date, time traps checked 5 OCT 75 1315

Last toe clip # used on previous day 1020 Field Analyst(s) WSH

Project 83 QA Check DB 12/9/75 WH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-9	PEMA	1030N	F	J	7	I	NONE
B-9	FUMI	0043	F	A	32	I	NONE
C-12	PEMA	1040N	F	J	10	I	NONE
C-11	PEMA	1050N	M	J	12	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

SCI

Sheet 2 of 2 File No: C5-1210-36

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name [illegible] Grid 1 Sample Period — Trap Night 5

Date, time traps set [illegible] Date, time traps checked 10/5/75 1145

Last toe clip # used on previous day 1014 Field Analyst(s) [illegible]

Project 73-03 QA Check [illegible] 10/5/75 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-7	PEMA	1015M	M	A	[illegible]	I	[illegible]
B-5	PEMA	1020	M	A	[illegible]	I	[illegible]
C-5	PEMA	1018	F	A	[illegible]	I	[illegible]
C-8	PEMA	1020	F	J	[illegible]	I	[illegible]

*Key taxonomic characters, physical condition of animal, etc:

ECI

File No: C.5.1.2.11-22

Sheet 1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name MIXED BRUSH N SLOPE Grid #5 Sample Period 29 Sept - 6 Oct 75 Trap Night 01

Date, time traps set 30 SEPT 75 1300 Date, time traps checked 1 OCT 75 1000

Last toe clip # used on previous day 0210 Field Analyst(s) WSH

Project 83 QA Check JB 10/9/75 WH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-2	EUMI	0003	U	A	34	U	NONE DENUDED 1/3 TAIL
A-3	PEMA	0220N	M	J	15	I	NONE
A-6	PEMA	0230N	M	A	17	I	NONE
A-9	EUMI	0240N	M	A	35	I	NONE
A-10	PEMA	0250N	F	A	27	A	PREGNANT LACTATING (RECENT)
A-11	EUMI	0065)2	F	A	32	I	NONE
A-13	EUMI	0310N	F	A	37	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 2 of 2 File No: 0.5.1.211.23

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mixed Beach (North slope) Grid 5 Sample Period 5 Trap Night 1

Date, time traps set 9/30/75 (1300) Date, time traps checked 10/1/75 (1000)

Last toe clip # used on previous day 0210 Field Analyst(s) DCE

Project P3-03 QA Check JB 10/9/75 WH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-2	Rimu	1030N	M	A	21	I	none
C-3	Eumi	0201	F	A	27	I	Poor condition
C-12	Eumi	1040N	M	A	25	I	
B-10	Eumi	1050N	M	A	22	I	Poor condition
B-9	Eumi	0101	F	A	34	I	Tail has been bobbed

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of 2 File No: C.5.1.211-24

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mirso ewash (N slope) Grid 5 Sample Period 5 Trap Night 02

Date, time traps set 1 OCT 75 1000 Date, time traps checked 2 OCT 75 1300

First toe clip # used on previous day 0310 Field Analyst(s) WSH

Project 83 QA Check dB 10/9/75 WTT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-1	PEMA	0320N	M	J	13	I	NONE
A-2	EUMI	0321N	M	A	30	I	NONE
A-3	EUMI	0201	F	A	RECAP	I	NONE
A-5	PEMA	0220	M	A	RECAP	I	NONE
A-5	PEMA	0322N	F	J	11	I	NONE
A-6	EUMI	0130	F	A	30	I	POOR CONDITION
A-7	EUMI	0302	F	A	34	A	ENLARGED NIPPLES
A-8	EUMI	0323N	F	A	35	I	NONE
A-11	EUMI	0330H	F	A	32	I	NONE
A-13	EUMI	0340N	F	A	34	D I	NONE

*Key taxonomic characters, physical condition of animal, etc.

POOR PHOTOCOPY

ECI

Sheet 2 of 2 File No: C.5.12.11-25

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mound Prairie (North) Grid 5 Sample Period 5 Trap Night 2

Date, time traps set 10/1/25 (1000) Date, time traps checked 10/3/25 (1350)

Last toe clip # used on previous day 1050 Field Analyst(s) DLK

Project 83-03 QA Check MD 10/4/25 WH 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-2	EUMI	1100N	F	A	29	I	none
C-3	EUMI	1200N	M	A	U	I	escaped before weighed
C-6	EUMI	1300N	M	A	30	I	none
C-7	EUMI	1400N	F	A	31	D	none
C-9	EUMI	1500N	M	A	35	I	none
C-10	EUMI	1050	M	A	Recap	I	Poor condition
C-11	EUMI	1100	F	A	31	I	none
C-12	EUMI	1200	M	A	Recap	I	none
C-13	PEMA	2400N	F	A	26	D	none
B-8	EUMI	2300N	M	A	27	I	none
B-7	PEMA	2400N	F	A	17	D	none
B-5	EUMI	2500N	F	A	31	I	none

*Key taxonomic characters, physical condition of animal, etc.

1 of 1

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C-5-1-2-11-26

Grid Name MIXED BROWN (N. SLOPE) Grid # 5 Project 83 Trap Night 03

Date, time traps set 2 OCT 75 Date, time traps checked 3 OCT 75 1500

Last toe clip # used on previous day 0340 Field Analyst(s) WSH

Sample period 5 QA Check JB 10/9/75 WSH 10/10/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	ANIMAL ~~Trap~~ Weight (gm)	Reprod. Status	Additional* Notes
C-1	PEMA	0350N	M	J	9	D [1]	NONE
C-3	EUMI	0410N	M	A	32	D	NONE
C-5	EUMI	0420N	F	A	32	D	DISCARDED
C-7	PEMA	0230	M	A	RECAP	I	NONE
C-8	EUMI	2003	M	A	RECAP	D	NONE
C-9	EUMI	0100	F	A	36	I	NONE
C-13	EUMI	0430N	F	A	33	I	NONE
A-13	PEMA	0440N	F	A	22	A	NONE PREGNANT
A-12	EUMI	0020	F	A	RECAP	I	NONE
A-11	EUMI	0450N	F	A	32	I	NONE
A-10	PEMA	0403	F	A	18	A	NONE
B-10	PEMA	0250	F	A	RECAP	D	PREGNANT
B-9	EUMI	1001N	M	A	35	I	NONE
A-8	PEMA	1002N	M	J	13	I	NONE
B-7	PEMA	2004	F	A	RECAP	A	PREGNANT
A-7	PEMA	0322	F	J	RECAP	I	NONE
A-6	EUMI	0323	F	A	RECAP	I	POOR CONDITION
B-5	PEMA	1003N	M	J	12	I	NONE
B-4	EUMI	1004N	M	A	32	I	NONE
A-4	EUMI	2055	F	A	31	D [A]	NONE NOT A TOE CLIP
A-3	EUMI	1005N	F	A	32	A	SWOLLEN
A-2	EUMI	0201	F	A	RECAP	I	SLOW TO RECOVER
A-1	EUMI	1100	F	A	RECAP	D	NONE

*Key taxonomic characters, physical condition of animal, etc.

C.5.1.211-27

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Mixed Conifer (N Slope) Grid # 5 Project 83 Trap Night 04

Date, time traps set 2 OCT 75 1630 Date, time traps checked 3 OCT 75 1320

Last toe clip # used on previous day 1005 Field Analyst(s) WSH

Sample period 5 QA Check JB 10/9/75 WH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Trap Weight	Reprod. Status	Additional* Notes
A-1	PTMA	1010N	M	J	9	I	
A-2	PTMA	1020N	F	A	18	A	ENLARGED NIPPLES
A-3	PTMA	0220	M	J	RECAP 11	D	
A-4	PTMA	0230	M	A	RECAP	I	
A-8	PTMA	4100N	M	J	12	D	
A-9	FUMI	0450	F	A	RECAP	I	NONE
A-11	PTMA	0140	M	A	20	I	NONE
A-13	PTMA	0440	F	A	RECAP 20	D	PNG
B-6	FUMI	0003	F	A	38	A	MISSING 1/3 of tail PREGNANT

*Key taxonomic characters, physical condition of animal, etc.

Sheet 2 of 2 File No: 0.5.1.2.11-28

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name [illegible] Grid T Sample Period 5 Trap Night 4

Date, time traps set 10/3/75 (1430) Date, time traps checked 10/4/75 (1320)

Last toe clip # used on previous day [illegible] Field Analyst(s) DCK

Project 73-03 QA Check JB 10/9/75 VTT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-1	EUMI	2010N	M	A	30	I	none
C-3	PEMA	2030V	M	A	14	I	none
C-7	PEMA	2020V	F	J	12	I	none
C-9	EUMI	1001	M	A	Recap	I	none
C-12	EUMI	0210	M	A	Recap	I	none
C-13	EUMI	2001	M	A	Recap	I	none
B-10	EUMI	0210	M	A	24	I	none
B-8	EUMI	0013	F	A	32	I	none
B-7	PEMA	2001	F	A	Recap	A	post lactating
B-4	EUMI	1300	M	A	Recap	I	none

*Key taxonomic characters, physical condition of animal, etc.

[illegible] REPORT

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Sheet 1 of 2 File No: C.5.1.2.1.29

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name MIXED POND Grid 5 Sample Period 5 Trap Night 05

Date, time traps set 4 OCT 75 1345 Date, time traps checked 5 OCT 75 1425

Last toe clip # used on previous day 1100 Field Analyst(s) WSH

Project 33 QA Check JB 10/9/75 WH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-1	PEMA	1010	M	J	RECAP	I	NONE WEAK
A-2	FUMI	0321	M	A	RECAP	I	NONE
A-3	PEMA	1070	F	A	RECAP 17	D A	NONE
A-5	FUMI	1005	F	A	RECAP	I	NONE
A-7	FUMI	0210	M	A	RECAP	I	NONE
A-8	PEMA	2004	F	A	RECAP 15	D	NONE LOST SCALE
A-9	FUMI	4200+1	M	A	33	I	NONE
A-11	FUMI	0450	F	A	RECAP	I	STUNNED
A-13	PEMA	0140	M	A	RECAP	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

File No: C.5.1 2.11-30

Sheet 2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name M... Grid 5 Sample Period 5 Trap Night 5

Date, time traps set 10/4/25 (1345) Date, time traps checked 10/5/25 (1100)

Last toe clip # used on previous day 2105 Field Analyst(s) DCK

Project 83-03 QA Check JB 10/9/25 MT 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-3	PEMA	1030	M	A	[illegible]	D	[illegible]
C-6	[illegible]	[illegible]	F	A	[illegible]	I	[illegible]
C-7	PEMA	1002	M	A	[illegible]	I	[illegible]
C-13	[illegible]	[illegible]	M	A	[illegible]	I	[illegible]
P-2	[illegible]	[illegible]	F	J	12	I	[illegible]
P-6	PEMA	1003	M	A	[illegible]	D	[illegible] 3 in scrotal trap
P-6	PEMA	1320	F	A	[illegible]	D	[illegible]

*Key taxonomic characters, physical condition of animal, etc.

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Sheet 1 of 2 File No: C5.12.12-22

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-I/SAGEBRUSH Grid 6 Sample Period 5 Trap Night 01

Date, time traps set 30 SEPT 75 @ 1600 Date, time traps checked 1 OCT 75 1430

Last toe clip # used on previous day 0240 Field Analyst(s) WSH

Project 83 QA Check JS 10/9/75 WH 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-11	PEMA	0250N	F	A	18	I	NONE
C-12	PEMA	0310Y	M	A	19	I	NONE
C-11	PEMA	0320N	M	A	17	I	NONE

*Key taxonomic characters, physical condition of animal, etc.

ECI

File No: C.5.1.2.12-23

Sheet 2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Pinon Juniper / Sagebrush Grid 6 Sample Period 5 Trap Night 1

Date, time traps set 9/30/75 1800 Date, time traps checked 10/1/75 (1430)

Last toe clip # used on previous day 1040 Field Analyst(s) DCK

Project 83-03 QA Check JB 10/9/75 WFT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-3	Pema	1050N	M	J	15	I	DOPS

*Key taxonomic characters, physical condition of animal, etc:

RBDSP PROGRESS REPORT

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Sheet 1 of 2 File No: C.5.1.2.12-24

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-J/SAGE Grid 6 Sample Period 5 Trap Night 2

Date, time traps set 10/1/75 Date, time traps checked 8:30 AM 10/2/75

~~Last~~ next toe clip # used on ~~previous~~ this day 0330 Field Analyst(s) Jim Stutz

Project RBSP-83 QA Check JB 10/4/75 MT 10/3/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-1	PEMA	0330	F	J	14	I	runs
A-3	PEMA	1050	M	A	RECAP	I	
A-11	PEMA	0320	M	A	RECAP	A	
A-13	PEMA	0340	F	J	11	I	

*Key taxonomic characters, physical condition of animal, etc.

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Sheet 2 of 2 File No: C.5.1.2.12-25

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name TJ/SC1 Grid 6 Sample Period 5 Trap Night 2

Date, time traps set 10/1/25 Date, time traps checked 10/2/25 0830

Last toe clip # used on previous day 1051 Field Analyst(s) BAKER

Project 83 QA Check AB 10/9/25 JST 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-9	PEMA	0240	M	J	18	I	—
C-9	PEMA	1110 N	M	J	12	I	—
C-11	PEMA	1200 N	F	J	12	I	—

*Key taxonomic characters, physical condition of animal, etc.

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(ECI)

Sheet 1 of 1 File No: C-51.2.12-21

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name PJ Edge Grid 6 Sample Period 5 Trap Night 3

Date, time traps set 10/2 0830 Date, time traps checked 10/3 0855

Last toe clip # used on previous day C340 Field Analyst(s) Kennedy Baker

Project 83 QA Check JB 10/9/75 WT 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-13	PEMA	0350N	M	A	17	I	With Bot fly larvae
C-11	PEMA	0410N	F	A	18	I	—
B-10	PEMA	0420N	F	J	11	I	—
B-9	PEMA	C104	F	A	21	I	—
B-4	PEMA	0440N	F	A	17	I	With (2) P. sp. ♀♀, larvae
C-3	PEMA	0430N	M	U	14	I	—
A-3	PEMA	0093	F	A	19	I	—
A-5	PEMA	1050	M	J	Recap	I	

*Key taxonomic characters, physical condition of animal, etc.

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1 of 2

C.5.1.2.12-27

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P-3/Forg Grid # 6 Project 22 Trap Night 1

Date, time traps set 10/2 - 0800 Date, time traps checked 10/3 - 0800

Last toe clip # used on previous day 0990 Field Analyst(s) Kennedy

Sample period 5. QA Check JB 10/9/25 WT 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Trap Weight	Reprod. Status	Additional* Notes
A-10	PEMA	1200	F	J	Escap	I	—
A-11	PEMA	0400	F	J	Escap	I	—
B-11	PEMA	0450N	F	J	10	I	—
A-12	PEMA	1001N	F	J	10	I	No fur on 2nd paw
C-12	EUMI	1002N	F	A	35	I	—

*Key taxonomic characters, physical condition of animal, etc.

Sheet 2 of 2 File No: C512.12-2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name P.J. Loop Grid 6 Sample Period 5 Trap Night 1

Date, time traps set 10/1 0800 Date, time traps checked 10/4 0800

Last toe clip # used on previous day ZCC Field Analyst(s) PARKER

Project S3 QA Check JA 12/9/75 WT 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-3	PEMA	0042	F	A	recap	I	10.5
A-1	EUMI	1800	M	A	34	I	
C-3	PEMA	1430	M	A	recap	I	
C-4	PEMA	0440	F	A	recap	I	

*Key taxonomic characters, physical condition of animal, etc.

ECI

1 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.S.1.2.12-29

Grid Name P-3/Sage Grid # 6 Project PJ Trap Night 5

Date, time traps set 10/4 - 0900 Date, time traps checked 10/5 - 0930

Last toe clip # used on previous day 1002 Field Analyst(s) Kennedy

Sample period 5 QA Check MB 10/9/25 JWH 10/13/25

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	~~Trap~~ Animal Weight gm.	Reprod. Status	Additional* Notes
P-12	PF MA	1003	F	A	14	I	—
P-13	PF MA	0350	M	A	[illegible]	I	[illegible]
C-13	PF MA	0310	M	A	Recap	I	—
C-11	PF MA	0310	F	A	26	I	[illegible] weight is correct!!

*Key taxonomic characters, physical condition of animal, etc.

2 of 2

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

C.5.1.2.12-30

Grid Name P-1/Cage Grid # 6 Project E3 Trap Night 5

Date, time traps set 10/4 0K-15 Date, time traps checked 10/5 0900

Last toe clip # used on previous day 1300 Field Analyst(s) BAKER

Sample period 5 QA Check JA 10/9/25 ust 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal ~~Trap~~ Weight	Reprod. Status	Additional* Notes
A-10	PEMA	0320	M	A	recap	I	—
A-3	PEMA	0043	F	A	recap	I	—
C-9	PEMA	1400	M	J	12	I	—

*Key taxonomic characters, physical condition of animal, etc.

File No: C.5.1.2.13-23

Sheet 1 of 1

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name upland meadow Grid 7 Sample Period Oct. 75 Trap Night 1

Date, time traps set 1000 9/30 Date, time traps checked 0900 10/1

Last toe clip # used on previous day 0013/0204 Field Analyst(s) Sonia Reyes

Project 83 (bag wt. 15 gr.) QA Check JB 10/9/75 MT 10/12/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-5	PEMA	0205N	M	A	14	I	none
C-10	PEMA	0012	M	A	17	I	"
B-9	PEMA	0301N	F	A	20	I	
B-6	PEMA	0302N	F	A	18	D	ACTIVE - LACTATING
A-2	PEMA	0014N	M	U	14	I	
A-7	PEMA	0114*N	M	A	17	I	WAS 0014, NOW 0114
A-8	PEMA	0015N	F	J	13	I	
A-11	PEMA	0021N	F	A	18	D	ACTIVE - LACTATING
A-12	PEMA	0022N	M	U	14	I	

*Key taxonomic characters, physical condition of animal, etc.

ECI

Sheet 1 of ___ File No: 5.5.1.2.13-24

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Upland Meadow Grid I Sample Period 9-30-1975 Trap Night 2

Date, time traps set 9/30 1345 Date, time traps checked 10-1-1975 1050

Last toe clip # used on previous day 0302/0022 Field Analyst(s) [illegible]

Project 83-03 QA Check [illegible] 10/1/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	O.V. Smear Additional* Notes
C-9	PEMA	0012	M	A	17	I	—
B-10	PEMA	0114	M	A	RECAP.	I	—
A-8	PEMA	0301	F	A	RECAP.	I	—
A-12	PEMA	0013	F	A	19	A	LACTATING

*Key taxonomic characters, physical condition of animal, etc.

File No: C-5.1.2.13-25

Sheet 1 of 1

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name ~~Field~~ Upland Meadow Grid 7 Sample Period Oct. 1975 Trap Night 3

Date, time traps set Oct 2, 1050 Date, time traps checked Oct 3 (1050)

Last toe clip # used on previous day 0322/0022 Field Analyst(s) Sam, Reed

Project 83-03 QA Check JB 10/9/75 WT 10/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-12	PEMA	0223	M	A	17	I	
A-10	PEMA	0012	M	A	PECAR.	D	
B-9	PEMA	0303N	M	J	9	I	
A-9	PEMA	0015	F	A	PECAR.	I	
A-12	PEMA	0013	F	A	PECAR.	I.	
A-13	PEMA	0023N	F	J	11	I	

*Key taxonomic characters, physical condition of animal, etc.

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File No: C.5.1.2.13-24

Sheet 1 of 1 SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Upland Meadow

Grid Name [illegible] Grid 7 Sample Period Oct 76 Trap Night 4

Date, time traps set Oct 1 (1010) Date, time traps checked Oct 4 (1030)

Last toe clip # used on previous day [illegible] Field Analyst(s) Sam, Pete

Project 12-83 QA Check JB 11/5/76 DST 12/13/76

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
A-1	[illegible]	[illegible]	F	A	19	I	
A-3	[illegible]	0014	M	A	[illegible]	—	
A-9	[illegible]	0114	M	A	[illegible]	I	

*Key taxonomic characters, physical condition of animal, etc.

ECI

File No: C-5-1-2-13-27

Sheet 1 of 1

SMALL MAMMAL LIVE TRAPPING FIELD DATA SHEET

Grid Name Upland Meadow Grid 7 Sample Period Oct 75 Trap Night 5

Date, time traps set 1 Oct (AM) Date, time traps checked 5 Oct (PM)

Last toe clip # used on previous day [illegible] Field Analyst(s) Sam, Rusty

Project 83 QA Check JB 10/9/75 WRR 10/13/75

Capt. Loc.	Species	Toe Clip No.	Sex	Age Class	Animal Weight (gm)	Reprod. Status	Additional* Notes
C-9	PEMA	0114	M	A	Recap	I	—
C-11	PEMA	0025N	M	A	12g	I	—
A-13	PEMA	0202	M	A	15g	D	—
A-9	PEMA	0015	F	A	Recap	I	—
A-8	PEMA	0025N	M	J	10g	I	*note above 1 typo → 0125
A-1	PEMA	0024	F	A	Recap	I	very weak

*Key taxonomic characters, physical condition of animal, etc.

ECI

File No: 83532-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number A Location Greenwood/Sour Field Analysts D.K. WSH

Sampling Period 5 Project Number 83-03 QA Check Kam 10/13/75

Date	Species	Sex	Age	Comments*
2 Oct 1975	no captures	N/A	N/A	N/A
3 Oct 1975	no captures	N/A	N/A	N/A
4 Oct 1975	no captures	N/A	N/A	N/A
5 Oct 1975	PEMA	U	J	none

*Reproductive condition, diagnostic characters, future use of

File No: 83 C 532.

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number B Location P-J (South) Field Analysts BAKER

Sampling Period 5 Project Number 83 QA Check [illegible] 10/12/75

Date	Species	Sex	Age	Comments*
1 Oct.	No captures			
2 Oct.	" No captures			
3 Oct.	" No captures			
4 Oct.	" No Captures			

*Reproductive condition, diagnostic characters, future use of [illegible]

File No: 83 C532-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number C Location P1 NORTH SLOPE Field Analysts WSH DCK

Sampling Period 5 Project Number 83 QA Check RAM 10/13/75

Date	Species	Sex	Age	Comments*
1 OCT 1975	NO CAPTURES	N/A	N/A	N/A
2 oct 1975	NO CAPTURES.	N/A	N/A	N/A
3 oct 1975	NO captures	N/A	N/A	N/A
4 Oct 1975	NO CAPTURES	N/A	N/A	N/A

*Reproductive condition, diagnostic characters, future use of

ECI

File No: 83C532-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number D Location Sagebrush Field Analysts Kestrel, Hardin

Sampling Period 5 Project Number 83 QA Check RDM 10/13/75

Date	Species	Sex	Age	Comments*
2 Oct	NO Captures			
3 Oct	NO CAPTURES			
4 Oct	NO captures			
5 Oct	NO Captures			

*Reproductive condition, diagnostic characters, future use of

File No: 83 C 532 -

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number 7 Location mixed brush Field Analysts Reyes, Sang

Sampling Period Oct. 75 Project Number 83 QA Check RDM 10/13/75

Date	Species	Sex	Age	Comments*
1 Oct 1975	Lagurus curtatus	M	A	none
2 Oct 1975	no captures	~	~	~
3 Oct 1975	no captures	~	~	~
4 Oct 1975	no captures	~	~	~

File No: 130532-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number F Location Douglas fir Field Analysts Reed / Sang

Sampling Period Oct. 75 Project Number 83 QA Check RDM 10/13/75

Date	Species	Sex	Age	Comments*
1 Oct 1975	no captures			
2 Oct 1975	NO CAPTURES			
3 Oct 1975	NO CAPTURES			
4 Oct 1975	NO CAPTURES			

*Reproductive condition, diagnostic characters, future use of

ECI

File No: 83 C 1 82-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number C5 Location ASPEN Field Analysts Reyes / Sanz

Sampling Period (5) Oct 1975 Project Number 83 QA Check RSM 10/13/75

Date	Species	Sex	Age	Comments*
1 Oct 1975	SOREX sp.	U	U	will positive I.D in Lab.
2 Oct 1975	No CAPTURES			
3 Oct 1975	No CAPTURES			
4 Oct 1975	No captures			

File No: 83C532-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number 1 Location Bottomland Meadow Field Analysts JNB, PMK

Sampling Period 5 Project Number 83 QA Check ecm 19/12/75

Date	Species	Sex	Age	Comments*
2 Oct 75	No captures	NA	NA	NA
3 Oct 75	No captures	NA	NA	NA
4 Oct 75	No captures	NA	NA	NA
5 Oct 75	No captures	NA	NA	NA

*Reproductive condition, diagnostic characters, future use of

File No: 83C522-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number 2 Location SAGEBRUSH FLAT Field Analysts WSH DCK

Sampling Period 2 OCT - (5) Project Number 83 QA Check RBM 10/13/75

Date	Species	Sex	Age	Comments*
1 OCT 1975	NO CAPTURES	N/A	N/A	N/A
2 OCT 1975	NO CAPTURES	N/A	N/A	N/A
3 OCT 1975	NO CAPTURES	N/A	N/A	N/A
4 OCT 1975	NO CAPTURES	N/A	N/A	N/A

*Reproductive condition, diagnostic characters, future use of

ECI

File No: 53C532-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number 3 Location Rabbitbrush Field Analysts BAKER

Sampling Period 5 Project Number 83 QA Check RMM 10/13/75

Date	Species	Sex	Age	Comments*
1 Oct.	Microtus montanus	F	A	to lab for pos. I.D.
2 Oct	NO Captures			
3 Oct	NO Captures			
4 Oct	No captures			

*Reproductive condition, diagnostic characters, future use of

File No: 33C532.

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number 4 Location Big Meadows Mt. Co. Field Analysts BAKER, KANTZ STATES

Sampling Period 5 Project Number 83 QA Check Pam 10/13

Date	Species	Sex	Age	Comments*
1 Oct	NO Captures	N/A	N/A	NA
2 Oct	No captures	N/A	N/A	NA
3 Oct	NO captures	N/A	N/A	NA
4 Oct	No Captures	N/A	N/A	NA

File No: 830 5.3.2-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number 6 Location Pinyon Juniper/Sagebrush Field Analysts DCK, WSN

Sampling Period 5 Project Number 83-53 QA Check Nam 10/13/75

Date	Species	Sex	Age	Comments*
10/1/75	no captures	N/A	NA	N/A
10/2/75	no captures	N/A	N/A	N/A
10/3/75	no captures	N/A	N/A	N/A
10/4/75	PEMA	F	J	—
10/4/75	PEMA	F	A	—
10/4/75	PEMA	F	A	—
10/5/75	Sorex sp.	F(?)	U	To lab for positive identification

*Reproductive condition, diagnostic characters, future use of

File No: 83C532-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number 7 Location Bald Field Analysts Sanz / Reyes

Sampling Period (5) Oct 1975 Project Number 83 QA Check RBM 10/13/75

Date	Species	Sex	Age	Comments*
1 Oct 1975	NO CAPTURES	N/A	N/A	N/A
2 Oct 1975	NO CAPTURES	/	/	/
3 Oct 1975	NO CAPTURES	/	/	/
4 Oct 1975	Lagurus curtatus	♂	A	none

*Reproductive condition, diagnostic characters, future use of

File No: 83 C 532-

SMALL MAMMAL PITFALL FIELD DATA SHEET

Pitfall Number 15 Location RIPARIAN Field Analysts JNB, PKK

Sampling Period 5 Project Number 83 QA Check RDM 10/13/75

Date	Species	Sex	Age	Comments*
3 Oct 75	No captures	N/A	N/A	N/A
4 Oct 75	No captures	N/A	N/A	N/A
5 Oct 75	No captures	N/A	N/A	N/A
6 Oct 75	No captures	N/A	N/A	N/A

*Reproductive condition, diagnostic characters, future use of

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STOMACH ANALYSIS DATA SHEET

Project 83 Date Sept - Nov Investigator Reyes

Location T1S R99W S24 NE¼NW¼ Habitat Greasewood - sagebrush

Capture Technique snap - traps

Comments born 12/15

Species: Peromyscus maniculatus

	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E
1	Su	S			S	11	S	S			S	21	S	S			S	31	Su	S			S	41	S	Su			S
2	S	S			S	12	S	S			S	22	S	S			S	32	Su	S			S	42	S	Su			S
3	Su	S			S	13	S	S			S	23	S	Su			S	33	Su	Su			S	43	S	S			S
4	S	S			S	14	S	S			S	24	S	Su			S	34	S	S			S	44	S	Su			S
5	S	S			S	15	S	S			Su	25	S	Su			S	35	S	Su			S	45	S	Vf			S
6	S	S			S	16	S	Su			Su	26	S	S			S	36	S	Vh			S	46	Su	S			S
7	S	Vf			S	17	Su	S			S	27	S	S			S	37	S	S			S	47	Su	S			S
8	S	S			S	18	S	S			Su	28	S	Su			S	38	S	S			S	48	Su	S			S
9	Su	S			S	19	S	Su			S	29	S	S			S	39	S	Su			S	49	Su	Su			S
10	Su	S			S	20	S	Su			Su	30	Su	S			S	40	S	Su			S	50	S	S			S

STOMACH ANAL[illegible] DATA SHEET

ecology consultants, Inc.

from 12/150

Project 83 Date Sept 1975 Investigator Reyes

Location [illegible] Habitat Soapbark

Capture Technique [illegible]

Comments stomach C empty except for bloody stomach tissue.

Species [illegible]

	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E
1						11						21						31						41					
2	Su	S				12	Su	S				22	Su	S				32	Su	S				42	Su	S			
3	Su	S				13	S	S				23	Su	S				33	Su	Su				43	Su	S			
4	Su	S				14	S	S				24	Su	S				34	Su	S				44	Su	S			
5	Su	S				15	V	Su				25	Su	S				35	Su	S				45	Su	S			
6	Su	Su				16	Su	S				26	S	S				36	S	S				46	Su	S			
7	Su	S				17	Su	S				27	Su	Su				37	S	S				47	Su	S			
8	V-f	S				18	Su	S				28	Su	S				38	S	S				48	Su	S			
9	Su	S				19	V	S				29	Su	S				39	S	S				49	Su	S			
10	V-f	S				20	Su	S				30	Su	S				40	S	Su				50	S	S			

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STOMACH ANALYSIS DATA SHEET

Project 83 Date Sept 1975 Investigator Reues

Location T2S R1EOW S 3 SE ¼ SW ¼ Habitat Mixed BRUSH.

Capture Technique Snap - trap

Comments

Species Peromyscus maniculatus

	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	(E)
1	Su		S			11	Su		Su			21	Su		Yg			31	Su		S			41	Su		S		
2	Su		S			12	Su		S			22	Su		S			32	Su		S			42	Su		S		
3	Su		S			13	Su		S			23	Su		S			33	Su		S			43	Su		S		
4	Su		S			14	Su		S			24	Su		S			34	Su		S			44	Su		S		
5	Su		Su			15	Su		S			25	Su		S			35	Su		S			45	S		S		
6	Su		S			16	Su		S			26	Su		S			36	Su		S			46	Su		S		
7	Su		S			17	Su		Su			27	Su		S			37	Su		S			47	S		S		
8	Su		S			18	Su		S			28	Su		S			38	Su		S			48	Su		S		
9	Su		S			19	Su		S			29	Su		S			39	Su		S			49	Su		S		
10	Su	↓	S	↓	↓	20	Su	↓	S	↓	↓	30	Su	↓	S	↓	↓	40	Su	↓	S	↓		50	Su	↓	S	↓	↓

STOMACH ANALYSIS DATA SHEET

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Project 83 Date Sept 1975 Investigator Reps

Location T2S R99W S21 NW¼ SE¼ Habitat Pinyon-juniper (south)

Capture Technique snap traps

Comments NO CAPTURES trans 12/15

Species

	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E
1						11						21						31						41						
2						12						22						32						42						
3						13						23						33						43						
4						14						24						34						44						
5						15						25						35						45						
6						16						26						36						46						
7						17						27						37						47						
8						18						28						38						48						
9						19						29						39						49						
10						20						30						40						50						

	Measurements						Food Categories				
	Sex	TL	T	HF	D	grams	-	V	I	Su	S
A											
B											
C											
D											
E											

Food Categories	Symbol	Total % F
Empty fields	-	
Vertebrate	V	
Invertebrate	I	
Succulent	Su	
Seed	S	

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STOMACH ANALYSIS DATA SHEET

Project B3 Date Sept 1975 Investigator Reyes

Location T25 R19W S14 SE¼ NW¼ Habitat Pinion-juniper (north)

Capture Technique snap traps

Comments NO CAPTURES Trans 12/15

Species

	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E
1						11						21						31						41						
2						12						22						32						42						
3						13						23						33						43						
4						14						24						34						44						
5						15						25						35						45						
6						16						26						36						46						
7						17						27						37						47						
8						18						28						38						48						
9						19						29						39						49						
10						20						30						40						50						

	Measurements						Food Categories				
	Sex	TL	T	HF	E	grams	-	V	I	Su	S
A											
B											
C											
D											

Food Categories	Symbol	Total % F
Empty fields	-	
Vertebrate	V	
Invertebrate	I	
Succulent	Su	
Seed	S	

STOMACH ANALYSIS DATA SHEET

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Form 12/15

Project 83 Date Sept 1975 Investigator Reyes

Location T2S R10OW S3 SE1/4 SW1/4 Habitat Mixed Brush

Capture Technique Snap-traps

Comments 2 animals' stomachs were completely empty

Species Eutamias minimus

	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E
1			S	V-f		11			S	S		21			S	S		31			S	V-f		41			S	V-f	
2			S	S		12			S	S		22			S	S		32			S	V-f		42			S	S	
3			S	S		13			S	S		23			S	S		33			S	S		43			S	V-f	
4			S	S		14			S	S		24			S	S		34			S	S		44			S	V-f	
5			S	V-f		15			S	V-f		25			S	V-f		35			S	Vf		45			S	S	
6			S	S		16			S	S		26			S	S		36			S	S		46			S	S	
7			S	S		17			S	S		27			S	S		37			S	V-f		47			S	V-f	
8			S	S		18			S	S		28			S	S		38			S	S		48			S	V-f	
9			S	S		19			S	S		29			S	S		39			S	V-f		49			S	V-f	
10			S	V-h		20			S	S		30			S	S		40			S	V-f		50			S	S	

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STOMACH ANALYSIS DATA SHEET

Project 83 Date Sept 915 Investigator Buys

Location T25R20W S16 NW - SW - Habitat Aspen

Capture Technique snap-trap

Comments Specimen C - contained 20% black spore bodies Sp = spore

Species Microtus longicaudus

	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E
1	Su	Su	Su		Su	11	Su	Su	Su		Su	21	Su	Su	Sp		Su	31	S	Su	Su		Su	41	S	Su	Su			Su
2	Su	Su	Sp		Su	12	Su	Su	Su		Su	22	S	Su	Sp		Su	32	S	Su	Su		Su	42	S	Su	Su			Su
3	Su	Su	Su		Su	13	Su	Su	Sp		Su	23	S	Su	Su		Su	33	S	Su	Su		Su	43	Su	Su	Su			Su
4	Su	Su	Su		Su	14	Su	Vl	Su		Su	24	S	Su	Su		Su	34	S	Su	Sp		Su	44	Su	Su	Su			Su
5	Su	Su	Su		Su	15	Su	Su	Su		Su	25	S	Su	Su		Su	35	Su	Su	Su		Su	45	Su	Su	Su			Su
6	Su	Su	Sp		Su	16	Su	Su	Su		Su	26	S	Su	Su		Su	36	S	Su	Su		Su	46	Su	Su	Su			Su
7	Su	Su	Su		Su	17	S	Su	Su		Su	27	S	Su	Su		Su	37	S	Su	Su		Su	47	Su	Su	Sp			Su
8	Su	Su	Sp		Su	18	S	Su	Sp		Su	28	S	Su	Su		Su	38	S	Su	Su		Su	48	S	Su	Sp			Su
9	S	Su	Su		Su	19	Su	Su	Sp		Su	29	Su	Su	Su		Su	39	Su	Su	Su		Su	49	Su	Su	Sp			Su
10	U-f	Su	Su		Su	20	Su	Su	Su		Su	30	S	Su	Sp		Su	40	S	Su	Su		Su	50	S	Su	Sp			Su

07

REPRODUCTIVE STATUS DATA SHEET

Project 83. Date 4 Oct 1975 Investigator Reyes

Location T2S R10OW S3 SE¼SW¼ Habitat Mixed Brush

Capture Technique Snap-trap

Comments

Species Eutamias minimus

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A	189	70	28	13	38	♂					
B	190	75	28	13	40	♂					
C	203	85	29	13	36	X					nulliparous
D											
E											

Species Peromyscus maniculatus

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A	145	63	19	14	16	X					nulliparous
B	143	62	19	13	14	X					nulliparous
C	169	77	19	17	19				3	3	very recent lactation
D											
E											

Species

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

REPRODUCTIVE STATUS DATA SHEET

Project 83 Date 20 Oct 1975 Investigator Reiss

Location T25 R9W S21 NW¼SE¼ Habitat Pinion-juniper (Soil)

Capture Technique Snap

Comments NO CAPTURES

Species _____

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

Species _____

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

Species _____

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

REPRODUCTIVE STATUS DATA SHEET

Project 83 Date 20 Oct 1975 Investigator Reyes

Location T25 R99W S17 SE¼ NW¼ Habitat Pinion-juniper (north)

Capture Technique Snap trap

Comments NO RECAPTURES

Species

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

Species

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

Species

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

Leon 12-15

REPRODUCTIVE STATUS DATA SHEET

Project 83 Date 4 Oct 1975 Investigator Reyes

Location T2S R9W S17 SE¼SW¼ Habitat Sagebrush

Capture Technique Snap-Trap

Comments

Species Peromyscus maniculatus

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A	150	64	21	15	14	X					nulliparous
B	158	66	20	15	18	♂					
C											
D											
E											

Species

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

Species

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

Form 17-18

REPRODUCTIVE STATUS DATA SHEET

Project 33 Date 4 Oct 1975 Investigator Reyes

Location T15 R29W S34 NE¼ SW¼ Habitat grassland sagebrush

Capture Technique 2 live trap deaths

Comments

Species Peromyscus maniculatus

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A	167	76	19	16	19				3	4	vacant
B	178	75	17	16	18				3	3	
C	148	67	18	14	14				3	4	
D											
E											

* trap deaths

Species Eutamias minimus

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A	147	70	28	13	24	X					nulliparous
B	106	85	28	12	31	X					nulliparous
C	115	78	27	14	28	X					nulliparous
D	200	75	29	14	37	X					nulliparous
E	150	79	29	13	31	X					nulliparous

* trap deaths

Species

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

REPRODUCTIVE STATUS DATA SHEET

Project 83 Date 4 October Investigator Reeds

Location T 25 R 10 DW S16 SW¼ SW¼ Habitat PPS ASPEN

Capture Technique snap-trap

Comments

Species Microtus longicaudus

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A	140	19	20	12	17g	X					multiparous
B	153	45	20	14	24g	♂					
C	168	52	20	12	30g				3	1	very old - can see corpa lutea
D	164	54	19	12	26g				1	3	corpa lutea visible
E	113	34	17	10	11g	X	juvenile				

Species

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

Species

	TL	T	HF	E	grams	Inactive	Embryos R	Embryos L	Placental Scars R	Placental Scars L	Comments
A											
B											
C											
D											
E											

MAMMAL NIGHT ROAD CENSUS DATA AND SUMMARY SHEET

Sanz/Baker

Project 83 Transect # 1 Date 19 OCT 75 Sunset Time ≈1830

Time Begun 2050 Temp. 7°C Time Completed 0120 20 OCT Temp. 7°C Cloud Cover 0 %

Starting Point on map Finish Point on map Length of Transect 30 mi

Observable Distance Estimates up to 25 meters. RSM 10/30/75

Mile 1 12; 2 12; 3 8; 4 10; 5 12; 6 15; 7 14; 8 10; 9 10; 10 11;

11 7; 12 9; 13 12; 14 13; 15 12; 16 17; 17 15; 18 20; 19 16; 20 15;

21 14; 22 14; 23 9; 24 7; 25 7; 26 9; 27 10; 28 10; 29 8; 30 8.

Odometer Reading	Species Observed	Habitat	Odometer Reading	Species Observed	Habitat
28.0 =	start				
43.6	- mule deer*				
	♂♀♀	bald on bluffs			
48.7	horses (7) *	sage			
52.2	- mule deer				
	♀ + 2 fawns*	sage			
58.0	end				
	* censused by other means				

MAMMAL NIGHT ROAD CENSUS DATA AND SUMMARY SHEET

Project 83 Transect # 2 Date 22 Oct 1975 Sunset Time _____

Time Begun _____ Temp. _____ Time Completed _____ Temp. _____ Cloud Cover _____

Starting Point _____ Finish Point _____ Length of Transect _____

Observable Distance Estimates up to 25 meters.

Mile 1 ____; 2 ____; 3 ____; 4 ____; 5 ____; 6 ____; 7 ____; 8 ____; 9 ____; 10 ____;

11 ____; 12 ____; 13 ____; 14 ____; 15 ____; 16 ____; 17 ____; 18 ____; 19 ____; 20 ____;

21 ____; 22 ____; 23 ____; 24 ____; 25 ____; 26 ____; 27 ____; 28 ____; 29 ____; 30 ____.

Odometer Reading	Species Observed	Habitat	Odometer Reading	Species Observed	Habitat
	Mammal night road census not conducted due to high winds and snow.				

RECEIVED

2.3.4 LARGE MAMMALS

2.3.4.1 Introduction - No changes have been implemented since Progress Report-4. See Section 2.3.4.1 for the objectives of the large mammal section.

2.3.4.2 Methods - Several methods are being employed to determine large mammal use of the area. Procedures have been described in Progress Report-1, and modifications have been described in Progress Reports 3 and 4. See Section 2.3.4.2.1 in Progress Report-4 for the methods of previous aerial surveys. For the methodologies of the migration movement study and mule deer pellet group counts, see Section 2.3.4.2.1.1 in Progress Report-1, and Section 3.6.2.4 in Progress Report-3.

2.3.4.3 Results

2.3.4.3.1 Aerial Surveys - Large mammal aerial surveys were conducted on November 6 and 24, 1975. The number of mule deer, elk , and feral horses observed during each survey is presented in Table 2.3-180. Relatively poor spotting conditions were experienced during both of the surveys. Small, widely scattered individuals and herds made up the 32 mule deer observations on November 6. Many more mule deer were observed on November 24. Most of the animals observed were located in small scattered herds east and west of Tract C-a. Few animals were observed on or near the tract, possibly due to the pre-developmental disturbance within the area.

Elk were not observed during the surveys conducted this quarter.

The 55 feral horses observed on November 6 were located southwest and northeast of Tract C-a. Thirty-five of the horses were observed in one herd on the ridge between Spruce Gulch and K U Gulch, and the remaining animals were in four small herds scattered over 84 Mesa. The feral horse distribution observed on 84 Mesa during the November 24 survey was approximately the same

Table 2.3-180 Number of mule deer, elk, and feral horses observed during aerial surveys conducted on November 6 and 24, 1975 for RBOSP

Date	Mule Deer	Elk	Feral Horses		
			Adult	Foal	Unidentified
November 6, 1975	32	0	24	1	30
November 24, 1975	133	0	40	4	43

as that observed on the first survey in November. Horses southwest of Tract C-a were more widely dispersed along Cathedral Bluffs and Airplane Ridge on the on the seasonal survey.

2.3.4.3.2 Migration Movement Studies - Fall 1975 migration movement studies commenced on October 22 and 23, halted during the deer hunting season, and were continued November 12-23, 1975. The number of mule deer observed in seven flights during the period is presented in Table 2.3-181. Track counts conducted on the road east of Tract C-a yielded additional information on mule deer movements during this period. The number and general direction of the tracks is presented in Table 2.3-182.

Relatively larger numbers of mule deer were observed on transects west of Tract C-a than on the other transects (Table 2.3-181). Numerous animals were located north of Sagebrush Hill, particularly in the Big Duck Creek and East Fork Spring Creek areas. Mule deer appeared to be moving slowly northeastward during this fall movement. Track records indicated that mule deer moving eastward outnumbered deer moving westward on all survey dates. (Table 2.3-182). Fewer mule deer tracks were recorded on 84 Mesa than along Stake Springs Draw and the ridge between Stake Springs Draw and Ryan Gulch. Much of the movement appeared to criss-cross the road as was noted during the Spring, 1975 survey.

Little mule deer activity was noted on Tract C-a or the area north of the tract during this period. Inflexibility of the program did not allow continuation of sampling to observe movement into those areas.

2.3.4.3.3 Mule Deer Pellet-Group Counts - Mule deer pellet-group plots were inspected during September 19-22, 1975, and the pellet groups accumulated over Summer, 1975 were recorded and removed. The number of pellet groups and

Table 2.3-181 Number of mule deer observed on each transect during fall 1975 migration study aerial surveys for RBOSP*

Date	Transect 1	2	3	4	5	6	7	8	9	10	11	12	13	TOTALS
October 22, 1975	1	0	0	0	5	0	0	0	3	0	2	1	1	13
November 12, 1975	2	7	0	2	3	0	1	0	18	24	23	24	52	156
November 14, 1975	7	1	0	1	0	1	0	2	2	19	20	14	41	108
November 16, 1975	9	0	15	0	0	4	0	1	4	12	26	8	22	101
November 18, 1975	5	0	0	0	0	0	9	5	6	17	19	15	7	83
November 20, 1975	**	1	2	1	0	2	2	12	18	39	52	65	42	236
November 22, 1975	2	5	19	2	0	0	4	2	8	28	87	61	38	256
TOTAL	26	14	36	6	8	7	16	22	59	139	229	188	203	

* Refer to Figure 2.3-10 for transect locations.

** Not censused due to aircraft malfunction.

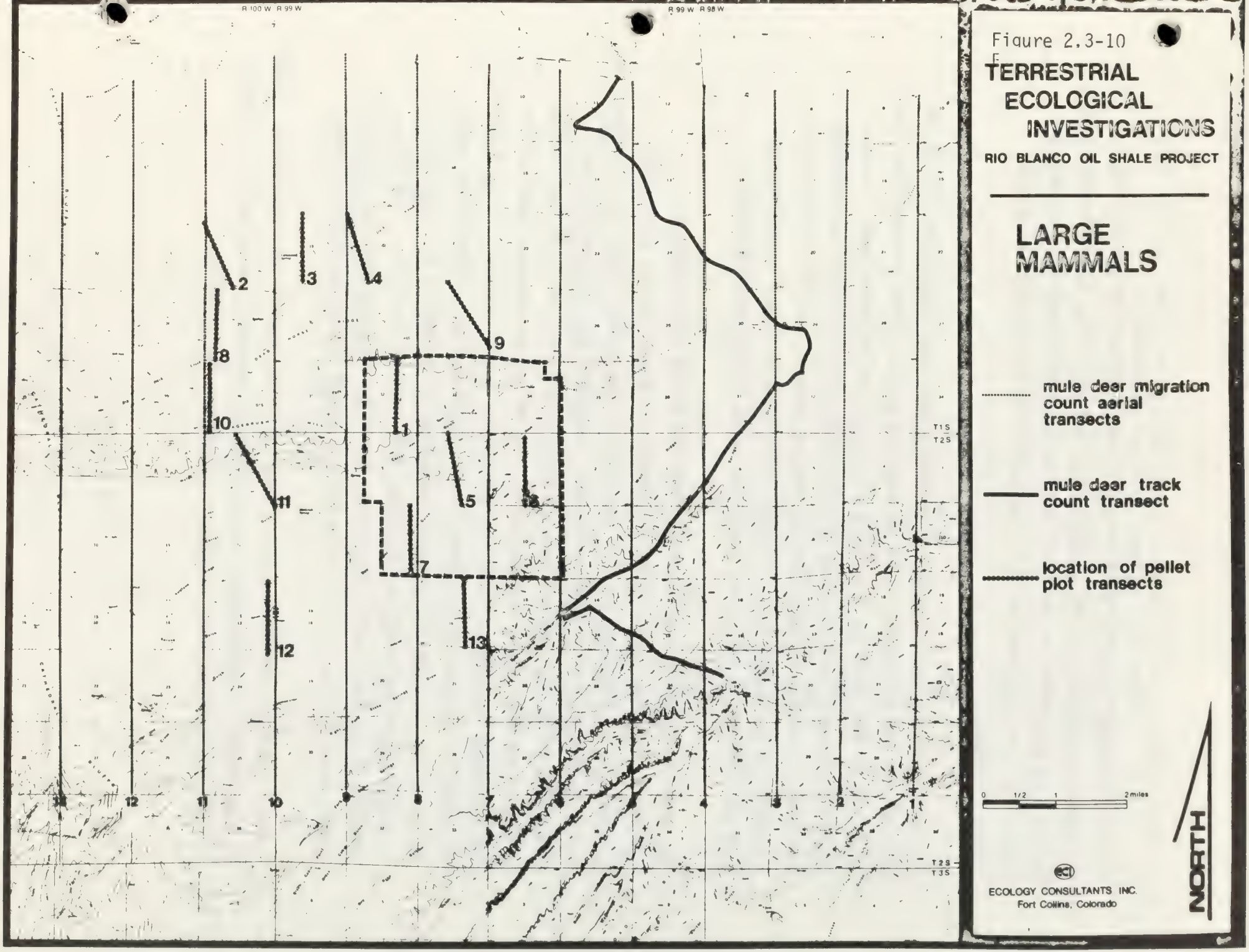
Table 2.3-182 Number of mule deer tracks crossing the dirt road east of Tract C-a* during Fall 1975 migration movement studies for RBOSP

Date Recorded	Total Tracks Recorded**	General Direction of Movement	
		West toward Tract C-a	East away from Tract C-a
October 23, 1975	35***	3	32***
November 15, 1975	62	15	47
November 17, 1975	59	21	38
November 19, 1975	42	5	37
November 21, 1975	77	14	63
November 23, 1975	89	27	62

* Refer to Figure 2.3-10 for location of road.

** One track equals sign of one individual.

*** Minimum figure, tracks were so jumbled in one area that an accurate count was not possible.


R 100 W R 99 W
R 99 W R 98 W
T1S
T2S
T2S
T3S
1
2
3
4
5
7
8
9
10
11
12
13
12
11
10
7
5
2
1
Figure 2.3-10
TERRESTRIAL ECOLOGICAL INVESTIGATIONS
RIO BLANCO OIL SHALE PROJECT
LARGE MAMMALS
mule deer migration count aerial transects
mule deer track count transect
location of pellet plot transects
0 1/2 1 2 miles
NORTH
ECOLOGY CONSULTANTS INC.
Fort Collins, Colorado

the pellet-group index for each transect are presented in Table 2.3-183. The formula offered by Gried, 1958 (cited in Feff, 1968) for determining the sample size necessary to produce a desired degree of sampling accuracy was applied to the data obtained from the Summer 1975 accumulation period (Table 2.3-184).

The data indicate that in order to estimate mule deer use within 20% of the mean at the 90% confidence level by sampling pellet-group accumualtion, the intensity of the sampling program would have to be increased over six-fold. The limitations of pellet-group data for estimating relative use of areas, the wide dispersion of mule deer during the summer, and the relatively low intensity of mule deer use of Tract C-a during the summer do not warrant such an increase at this time under the scope of the present studies.

The conclusions which can be drawn from the pellet-group data are limited by the low frequency of occurrence of groups on the transects. A scattered distribution of mule deer during the summer would not be conducive to large accumulation of pellet groups. However, general conclusions concerning mule deer habitat use are suggested on the basis of the limited pellet group data which are available. No pellet groups were recorded for the transects located on Tract C-a (transects 1, 5, 6, and 7) or on transect 13, which is located in a sagebrush and pinyon-juniper covered area south of Tract C-a. All pellet groups observed were located in mixed brush(92%) or sagebrush/mixed brush associations (8%) west of Tract C-a. The data indicate then, that mule deer prefer the mixed brush vegetation types most common west of Tract C-a, and few use the tract itself during the summer.

2.3.4.4 Summary and Conslusions - The following summary and conclusions should be considered as preliminary interpretations based on limited data and subject to modification when more complete information is available.

Table 2.3-183 Mule deer pellet-groups accumulated during summer 1975 on 13 transects on and near Tract C-a for RBOSP

Transect Number	Pellet Groups Recorded	Pellet Groups Per Acre	Period of Accumulation (days)	Pellet Group Index*
1	0	0.0	125	0.0
2	4	69.7	123	0.57
3	2	34.8	125	0.28
4	1	17.4	125	0.4
5	0	0.0	125	0.0
6	0	0.0	125	0.0
7	0	0.0	125	0.0
8	3	52.3	123	0.43
9	1	17.4	127	0.14
10	6	104.5	125	0.81
11	5	87.1	125	0.70
12	2	34.8	128	0.27
13	0	0.0	129	0.0

*Pellet group index equals the pellet groups per acre divided by the accumulation period.

$\bar{x} = 1.85$

$n = 13$

$SD = 2.08$

$S\bar{x} = 0.58$

90% Confidence interval

$1.85 \mp (1.782 \times 0.58) = 1.85 \mp 1.03$

Table 2.3-184 Calculation of sample size necessary to produce a sample with a 0.20 selected risk of error at the 90% confidence level for mule deer pellet-group counts for RBOSP (Formula from Grieb, 1958 - as cited in Neff, 1968)

$$N = \frac{(t_{0.10})^2 s^2}{(0.20 \times \bar{x})^2}$$

Where:

N = number of plots or transects required

s^2 = variance of the preliminary sample data

$\bar{x}$ = mean of the preliminary sample data

0.20 = selected risk of error (e.g., if the estimate is expected to fall within 20% of the mean 90 times out of 100, use 0.20 times the mean)

$t_{0.10}$ = tabular value for the selected level of probability.

Based on summer 1975 accumulation period.

$$N = \frac{(1.78)^2\ 4.28}{(0.20 \times 1.85)^2} = 99$$

99 transects necessary
-13 transects presently established
86 additional transects would be necessary to produce the desired accuracy.

Mule deer appeared to be scattered in small groups east and west of Tract C-a during the aerial surveys conducted in November. Relatively more animals were observed west of Tract C-a than east of the tract during aerial surveys for migration movement studies. Mule deer appeared to be moving north-eastward during the fall migration period. Summer use of Tract C-a was relatively light, since mule deer used the mixed brush areas west of Tract C-a more than any other vegetation type.

Feral horses were located south-west of Tract C-a and on 84 Mesa during the quarter. Elk were not observed during investigations conducted this quarter.

2.3.4.5

RAW DATA

for

LARGE MAMMALS

File No. 83 C. L. 3. 1

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Page 1 of 1

Proj/Study 83/1.1 Date Flown 6/4/75 Species Mule deer Survey Area RBOSP

Observers: R. L. King L. C. Bayless Pilot/Aircraft LF Poor / Cessna 206

Start 0730 Finish 0956 Avg. Indicated Air Speed 85 mph Est. Altitude AGL 200'

Counting Conditions: Ground Cover Poor Light Poor/Poor Air Poor

Weather: Temp. 41°/43 Wind 5/15 Cloud Cover 2/0 Analyst FLK+CLK QA Check

Observations M	F	JUV	T	Location	Notes and Comments
			2	1 Color 84 mesa	
			2	1 across yellow Creek	F-J habitat
			4	2 between migration	south of Ryan Gulch Sagebrush h
			1	3 South of willow Creek	F-J and Sagebrush
			3	3 Wagon Road Ridge	F-J Type
			5	4 West of Willow Creek	F-J and Sagebrush
			4	11 Cliff Creek Ridge NE corner of Trail Creek	Grassland sage
			2	15 Kinsley's Bar Oak Creek	mixed-brush type
			2	17 Top of Dead Horse Ridge	
			1	1 [illegible]	
			2	[illegible] Buck Creek	F-J habitat
			4	2 [illegible] Ridge	F-J [illegible]
			1	10 [illegible] of Dead Horse Ridge	mixed brush type

RBOSP PROGRESS REPORT

Total Animals Counted: 32

Animal Distribution:

Jan 12-16-75

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM

1 of 2

Proj/Study 23/04 Date Flown 24 Nov 1975 Species Mule Deer Survey Area RBOSP

Observers: R. Elkins Lee Pat Kennedy Pilot/Aircraft Len Pann / Kessan 206

Start 07:57 Finish 10:31 Avg. Indicated Air Speed 80-85' Est. Altitude 150-200

Counting Conditions: Ground Cover poor Light poor Air Fair

Weather: Temp 28°/28° Wind E1/SW4 Cloud Cover 3/3 Analyst CLK PLK QA Check brm 1-19-7

Observations M	F	JUV	U	Location (Transect)	Notes and Comments
				1	Barb Mihaljevich along for a QA check
	1			S of Yellow Creek	P-J/Sage
1	1			S of yellow Creek	P-J/sage
			3	Wagon Road Ridge	P-J type
	1			2 S of yellow Creek small gully	Sage / P-J
2			4	3 S of yellow Creek	P-J/sagebrush type
	1			Wagon Road Ridge	
				4	Few tracks on Wagon Road Ridge.
	1			S of yellow Creek	Sagebrush
			7	5 Top of Wagon Road Ridge	P-J/sagebrush
			5	6 North of Stake Springs	P-J/Sagebrush
			1	8 South of Stake Springs	
			2	Wolf Ridge	P/J
1	1			9 N of Corral Gulch	
			2	10 84 mesa	P/J Sagebrush
1				12 N of Corral Gulch	P/J Sagebrush
			2	13 S of B Gully	
			2	15 at start of transect	P/J
			2	before Live Eagle Gully	
			1	N slope of Airplane Ridge	
			6	16 S slope North of Big Duck Creek	
			2	17 S of East Fork Spring Creek	badland
			3	Slope N of Big Duck Creek	
			3	N slope S of N Fork Big Duck Creek	
			5	N part of Sagebrush Hill	mixed brush
			3	18 S of Cross Gulch	
			5	Top of Sagebrush Hill	
5	6		60	Subtotal	

Total Animals Counted: sub total 71

Animal Distribution: mixed.

RBOSP PROGRESS REPORT

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM 2 of 2

Proj/Study 83/04 Date Flown 24 Nov 1983 Species Mule Deer Survey Area RBOSP

Observers: R _____ L _____ Pilot/Aircraft _____

Start _____ Finish _____ Avg. Indicated Air Speed _____ Est. Altitude _____

Counting Conditions: Ground Cover _____ Light _____ Air _____

Weather: Temp. _____ Wind _____ Cloud Cover _____ Analyst _____ QA Check hms 1-19-76

Observations M	F	JUV	U	Location (Transect)	Notes and Comments
		1	6	18 bottom Little Duck Creek	Headwaters
			6	19 1 mi S of start	
			4	N of N Fk Big Duck Creek	mixed brush
			4	" " " " " "	mixed brush
			4	19 Big Duck Creek	mixed brush
			2	19 end of transect	mixed brush
	1			1 54 mesa about 1½ miles south of South Van Horn Gulch	
			1	1 54 mesa south of the road just north of Ryan Gulch	
	1			3 south of Duck Creek	p-j woodland
	4			3 Hunt ridge - just north of Ryan Gulch	running in p-j woodland
			9	6 Corral Gulch	
			3	6 ridge just north of wagon road ridge	p-j/sagebrush ecotone
	4			15 north of ~~the north fork of~~ Big Duck Creek	p-j woodland
	2			15 Dead Horse Ridge	p-j woodland
	2			17 ~~south~~ north of ~~Water Gulch~~ Big Duck Creek	mixed brush
	1			17 south of Water Gulch	
	2			18 north of Spruce Gulch	mixed brush
	3			19 Dead Pig Ridge	bedded down in an aspen stand
					transcript delayed due to annual report
	53		39	page totals = 62	

Total Animals Counted: 62+71 = 133

Animal Distribution:

RBOSP PROGRESS REPORT

File No. 83 C.6.3.1

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM

Proj/Study 83/01 Date Flown 6/[illegible]/83 Species ELK Survey Area RBOSP

Observers: R [illegible] L [illegible] Pilot/Aircraft [illegible]

Start [illegible] Finish [illegible] Avg. Indicated Air Speed [illegible] Est. Altitude [illegible]

Counting Conditions: Ground Cover poor Light [illegible] Air poor

Weather: Temp. [illegible] Wind [illegible] Cloud Cover [illegible] Analyst [illegible] QA Check [illegible]

Observations				Location	Notes and Comments
M	F	JUV	U		
					No elk observed 6-16

RBOSP PROGRESS REPORT

Total Animals Counted: 0

Animal Distribution:

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM 1501

Proj/Study 83/04 Date Flown 24 Nov 1975 Species ELK Survey Area BBOSP

Observers: R & CL Kling L & Pat Kennedy Pilot/Aircraft LearJet / Cessna 206

Start 0757 Finish 1031 Avg. Indicated Air Speed 80-85 Est. Altitude 150-200

Counting Conditions: Ground Cover poor Light poor Air fair

Weather: Temp 28/29 Wind E1/SW4 Cloud Cover 3/3 Analyst CLK QA Check bmm 1-19-76

Observations M	F	JUV	U	Location	Notes and Comments
					No elk observed.
					Transcript delayed due to annual report

Total Animals Counted: 0

Animal Distribution:

RBOSP PROGRESS REPORT

File No. 83.6.3.1

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Page 1 of 1

Proj/Study Sp/ed Date Flown 6 [illegible] 1975 Species Feral Horse Survey Area KRCSP

Observers: R[illegible] K[illegible] L[illegible] L. Kennedy Pilot/Aircraft L.E. Paul / Cessna [illegible]

Start 0926 Finish 0956 Avg. Indicated Air Speed [illegible] mph Est. Altitude [illegible]

Counting Conditions: Ground Cover Poor Light Poor Air Rough

Weather: Temp. 45°/F Wind S/5 Cloud Cover 2/C Analyst RLK/RLK QA Check [illegible]

Observations Adult	Observations Juv	Observations ?	Location (Transect)	Notes and Comments
1			1 [illegible] Yellowjacket and Virgin Conch	Black (stud?) with left rear foot white
7			12 Sorrel with Grulla	2 black, 3 gray, 2 sorrel
5			13 Between Grulla ridge	3 gray 1 bay 2 sorrel
4	1	?	17 Drop: West Right fork Snake Spring	Single white lightnose 1 black small dun 1c Horses were too bunched to classify
3			Trail 1 mi ES south of	Buckskin pinto - all dark
4			[illegible] south of "D" Valley	3 dark and 1 white

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM 1 of 1

Proj/Study 83/04 Date Flown 24 Nov 1975 Species Feral Horses Survey Area RBOSP

Observers: RF CL Kling LR Pat Kennedy Pilot/Aircraft Len Paur / Cessna 206

Start 0756 Finish 1031 Avg. Indicated Air Speed 80-85 Est. Altitude 50-200

Counting Conditions: Ground Cover poor Light poor Air Fair

Weather: Temp. 20°/25° Wind E1 fw4 Cloud Cover 3/3 Analyst CLK QA Check brm 1-19-76

Observations M (+Male)	F	JUV	U	Location (Transect)	Notes and Comments
			3	3 84 mesa	sagebrush
			7	3 84 mesa	Sagebrush Near Duck Creek
					2 black rest were brown
5	2			10 84 mesa	1 white 1 gray 2 bay 1 sorrel (2 dark jaw)
3	1			14 between trail and "A" gully	2 gray, sorrel, 1 dark jaw
			16	18 beginning of transect	
4	1			off Pillow Marker	1 sorrel 2 dark 1 gray 1 dark jaw.
		15		19 sign on Airplane Ridge	2 white 2 Gray (Sorral rest were dark
3				7 ridge south of north Vantlorn Gully	2 red 1 black, foraging in pinyon-juniper/sagebrush area
7				9 84 mesa, north of Corral Gulch	2 white, 2 black, 3 red; running in sagebrush type
4				14 heading [illegible] Ridge	3 red. 2 black
1				15 Airplane Ridge	1 white standing in sagebrush type
2				16 Airplane Ridge	1 dark; 1 white
4				17 South of K-C Gulch	4 black; 2 red
1				18 South of F. [illegible] of Spring Creek	foraging in a mixed brush type (black) [illegible]
					transcript delayed due to annual report
40	4	43			

Total Animals Counted: 87

RBOSP PROGRESS REPORT

File No. 83 C.6.1.3

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM

Proj/Study 83C1 Date Flown 6 Nov 1975 Species Domestic Livestock Survey Area RBOSP

Observers: RF CL Kling LR P.L. Kennedy Pilot/Aircraft Lt Bear / Cessna 206

Start 0926 Finish 0956 Avg. Indicated Air Speed 90 mph Est. Altitude 100-200'

Counting Conditions: Ground Cover Poor Light Poor/Fair Air Poor

Weather: Temp. 48° Wind S 2/5 Cloud Cover 2/0 Analyst RLK+CLK QA Check [illegible]

Observations M	F	JUV	U	Transect	Location	Notes and Comments
			3	1	Small gully by Ryan	School house
			4		meadow " "	" "
			65		Black Sulfur	bottomland meadow
			43	2	Black Sulfur	meadow east of Duckett Ranch
			6		Top of ridge in	sagebrush North of Black Sulfur
			2	3	S of Ryan Gulch	near old fence
			5		Powerline + road on	Wagon Road Ridge
			4	4	near intersection of	roads on Wagon Road Ridge
			4	5	Bottom of Ryan Gulch	sagebrush type
			3		Wagon Road Ridge	
			6	6	Start of the Transect	
			13	7	Ridge S of Big Dusk	Creek
			4		Sagebrush Flat	south of curve on 84 Mesa Road 2 miles out
			7		Wagon Road Ridge	
			10	8	West of Reagle Ranch	meadow bottomlands
			3	9	Bottom of Dusk Creek	Sagebrush
			3		84 mesa north of 84 Main Road	
			12		Ryan Gulch	Sagebrush type Picking up turbulent air
			3	10	West of previous head	
			9		Bottom of Dusk Creek	
			13	11	Off Crest of ridge of N/E	corner of C-6a Bottomland Sagebrush
			30	12	Big Dusk Creek Bottom	
			4	13	S Big Dusk Creek	P-J type
			5		confluence of Corral Gulch	and Dry Fork
			6	14	Ridge South of Corral Gulch	
			4	16	Dirt Horse Ridge	
			5		Across Big Dusk Creek	From previous sighting

RBOSP PROGRESS REPORT

Total Animals Counted: 167

Animal Distribution:

File No. 83 C.6.1.3

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM

Proj/Study 83/61 Date Flown 6 Nov 83 Species Domestic Sheep Survey Area RBOSF

Observers: RF Ockenfels LR PI Kennedy Pilot/Aircraft Lon Price / Cessna 206

Start 0721 Finish _____ Avg. Indicated Air Speed _____ Est. Altitude _____

Counting Conditions: Ground Cover _____ Light _____ Air _____

Weather: Temp. _____ Wind _____ Cloud Cover _____ Analyst _____ QA Check _____

Observations M	F	JUV	U	Location	Notes and Comments
			3	12 Dead Pig Ridge	
			5	1 ~~Ryan Gulch~~	Black Sulphur Creek
			13	2 Black Sulphur	Creek
			7	2 Ryan Gulch	
			3	3 road runway	log Black Creek
			5	A3 ~~Ryan Gulch~~	~~Black Sulphur Creek~~
			3	A3 Wagonroad ridge	
			2	A3 north of ~~Ryan~~	Gulch Duckett Ranch
			7	3 Black Sulphur	Creek
			4	4 wagonroad ridge	
			1	4 ½ mile north of south end of wagonroad ridge - sagebrush type	
			3	4 Ryan Gulch (ridge south of Ryan Gulch) p-j type	
			2	4 Yellow Creek	
			2	4 84 mesa - south of	north Van Horn Gully
			8	5 South of 84 mesa	
			2	5 slope north of Ryan	Gulch - p-j type
			4	5 Just South Ryan	Gulch - p-j type
			3	5 wagonroad ridge - p-j type	
			6	6 wagonroad ridge - sagebrush type	
			5	7 Reigle Ranch to Ryan	Gulch
			1	7 wagonroad ridge	
			6	8 Ryan Gulch	
			3	9 84 mesa	
			2	9 84 mesa	
			7	9 Ryan Gulch (south fk	
			5	10 southeast of 84 mesa	mixed sagebrush/p-j type
			4	11 north of Big Buck	Creek

RBOSF PROGRESS REPORT

Total Animals Counted:

Animal Distribution:

BIG GAME AERIAL CENSUS REPORT AND DATA SUMMARY FORM

83C.6.13

Page 3 of 3

udy 5.16.1 Date Flown 6 Dec 1984 Species Pronghorn Survey Area RBOSP

vers: WC Klug LT Kennedy Pilot/Aircraft Lin Piper / Cessna 206

0726 Finish _____ Est. ground speed & alt. _____

unting conditions: Ground cover _____ Light _____ Air _____

eather: Temp. _____ Wind _____ Cloud cover _____ Analyst _____

Observations ♂	♀	JW	T	Location	Notes and Comments
			3	11 Ryan Gulch	
			4	11 Calloway Gulch	
			15	12 Corral Gulch	
			2	12 ridge north of Corral Gulch	
			7	12 Big Buck Creek	
		1	1	13 Big Buck Creek	
			1	13 South of A Gully	
			1	14 South of Dry Fork	
			5	15 north of Big Buck Creek	

RBOSP PROGRESS REPORT

otal Animals Counted: 500✓

imal Distribution:

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM

1 of 3

Proj/Study 83/04 Date Flown 24 Nov 1975 Species Domestic Cattle Survey Area RBOSP

Observers: RF CLKing LR Pat Kennedy Pilot/Aircraft Len Paur / Cessna 206

Start 07:56 Finish 10:31 Avg. Indicated Air Speed 80-85 Est. Altitude 150-200

Counting Conditions: Ground Cover poor Light poor Air Fair

Weather: Temp. 36/28° Wind E 1/SW 4 Cloud Cover 3/3 Analyst CLK RLC QA Check brm 1-19-76

Observations M	F	JUV	U	transect	Location	Notes and Comments
			2	1	Bar D Mesa	
			2	1	Bar D Mesa	N of Road
			4	1	" " "	
			10		Ryan Gulch	bottom
			4		Wagon Road Ridge	
			1		bottom of Black Sulfur	by road
			5		meadow by Duckett Ranch	
			16	2	by Duckett Ranch	Sage brush
			12	3	84 mesa	
			46		Ryan Gulch	
			14	4	bottom of Yellow Creek	
			16	5	84 Ranch Meadow	
			2		Wagon Road Ridge	P-J type North Slope
			4		Top of Wagon Road Ridge	
			5	6	S. side of Road up Corral Gulch	
			26	7	Corral Gulch	bottom land
			3		N of Ryan Gulch	
			5		by Riegle Ranch	
			2	8	at start of transect	
			75		W of Riegle Ranch	
			(26)		bottom of Corral Gulch	(same as #7)
			7	9	start of the transect	
			4		top of Ridge at end	
			14		by windmill at the end	
			3	10	" " " beginning	
			11		S of Bar D Mesa	
			14		Bottom of Snake Springs	
			311		subtotal ✓	

Total Animals Counted: 584

Animal Distribution: mixed

RBOSP PROGRESS REPORT

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM

2 of 3

Proj/Study 83/04 Date Flown 24 Nov 1975 Species Domestic Cattle Survey Area RBOSP

Observers: R _____ L _____ Pilot/Aircraft _____

Start _____ Finish _____ Avg. Indicated Air Speed _____ Est. Altitude _____

Counting Conditions: Ground Cover _____ Light _____ Air _____

Weather: Temp. _____ Wind _____ Cloud Cover _____ Analyst. _____ QA Check bm 1-19-76

Observations M	F	JUV	U	Location (Transect)		Notes and Comments
			2	10	Duck Creek	
			24	11	84 mesa	
			12		Stake Springs Pond	
			5		Stake Springs Pond	
			3	12	at start of transect	
			2		Wolf Ridge	Sagebrush
			13		bottom of Corral Gulch	
			17		bottom of Duck Creek	
			3	14	N of Big Duck Creek	
			4		S of Little Duck	juniper type
			5	15	bottom of Duck Creek	
			2		before Dive Eagle Gully	
			3		S slope of Dead Horse	Ridge
				16	6 domestic horses in Corral at Cow Camp on Stake Duck Creek	
			5	1	Hunt ridge north of road on 84 mesa	
			45		Black Sulfur creek	
			1	2	North of road in section 84 on 84 mesa	
			1	4	ridge south of Ryan Gulch	p-j woodland
			11		Ryan Gulch	mixed brush
			12		Yellow Creek	
			4		Duck creek	
			2	5	Duck Creek	
			13		Corral Gulch	
			6		wagon road ridge	
			8	6	Ryan Gulch	
			223	pur herd		

Total Animals Counted: 584

RBOSP PROGRESS REPORT

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM

Proj/Study 83/04 Date Flown 24 Nov 1975 Species Domestic Cattle Survey Area 3 of 3 KBOSP

Observers: R _____ L _____ Pilot/Aircraft _____

Start _____ Finish _____ Ave. Indicated Air Speed _____ Est. Altitude _____

Counting Conditions: Ground Cover _____ Light _____ Air _____

Weather: Temp. _____ Wind _____ Cloud Cover _____ Analyst _____ QA Check bms 1-19-76

Observations M	F	JUV	U	Location	Notes and Comments
			9	7 Ryan Gulch	
			8	8 Ryan Gulch	
			2	Corral Gulch	
			3	84 mesa north of Corral Gulch	
			10	9 Galloway Gulch	
			2	12 Ryan Gulch	
			3	13 south of Little Duck Creek	
			7	14 south of ~~A~~ Live Eagle Gully	
			1	15 north of the Big Duck Creek	
			1	Big Duck Creek	
			8	Dead Horse Ridge	
					transcript delayed due to annual report
			54	page total ✓	

Total Animals Counted: 584

Animal Distribution: M. /

RBOSP PROGRESS REPORT

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Movement Study

Proj/Study 83/04 Date Flown 22 OCT 1985 Species Mule Deer Survey Area Rio Blanco Study Area

Observers: RFL Kling LFL Lauer Pilot/Aircraft L. Lauer / Cessna 206

Start 0824 Finish 1009 Avg. Indicated Air Speed 80-85 mph Est. Altitude 200'

Counting Conditions: Ground Cover Poor Light Good Air Poor

Weather: Temp. 50/— Wind W5/SW4 Cloud Cover 0/0 Analyst LFL QA Check _____

Observations M	F	JUV	U	Location	Notes and Comments
				Transect	very turbulent air conditions forced us to restart transect #13
			2	11 S. of E. Fork Spring Creek	
			3	9 ridgetop N. of Big Duck Creek	
		5	~~4~~ 4	~~5~~ 4 S. of gulch on Wolf Ridge	
			9	LFL observation	
			1	13 1 1/2 mi S. of start	
			1	12 N. of Big Duck Creek	
			1	1 E of 84 ranch bedded down	
			3	Pauer observation	
			12		

Total Animals Counted: 12

Animal Distribution: scattered

File No. 83261.A.

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Movement 1062

Proj/Study 83/04 Date Flown 12 Nov 1975 Species Mule Deer Survey Area RBOSP

Observers: RE CL Kling L.F L.F. Pons Pilot/Aircraft L.F. Pons / Cessna 206

Start 0743 Finish 0932 Avg. Indicated Air Speed 80-85 Est. Altitude 150-200'

Counting Conditions: Ground Cover Excellent / Good Light Excellent Air Excellent

Weather: Temp. 20°/25° Wind E @ 1 Cloud Cover 0 / 0 Analyst. CLK QA Check [illegible] 12-19-75

Observations M	F	JUV	U	Location Transect		Notes and Comments
			4	13	beginning of transect	Fresh snow
			3		1½ mi S of start	
			7		East Frk Spring Creek	
			5		Headwaters of Big Duck	
			10		S of Big Duck	
			18		S of Big Duck	
			2		S of Big Duck	
			3		Corral Gulch	numerous tracks along S facing slopes
			1	12	NW of Diamond Hill	by Diamond Hill
			3		Ridge N from Corral Gulch	
			2		Draw Past The Ridge	
			3		N of Big Duck	
			3		N of Big Duck	
			6		Before East Frk Spring	
			3		" " " "	
			1		Soap Gulch.	
			1	11	S of Little Duck	Bedded
			2		Dead Horse Ridge	numerous tracks on S facing slope of Dead Horse
			3		Water Gulch	S facing slope
			1		N slope below Airplane	
			12		Airplane	
			4		Diamond Hill S slope	
			9	10	Start of Transect	
			2		N slope of Airplane	
			6		Dead Horse Ridge	
			4		Reese Gully	
			3		Little Duck Creek	

RBOSP PROGRESS REPORT

Total Animals Counted:

Animal Distribution:

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM 2 of 2

Migration movement

Proj/Study 93/04 Date Flown 11 Nov 1975 Species Mule Deer Survey Area RBOSP

Observers: R _____ L _____ Pilot/Aircraft _____

Start _____ Finish _____ Avg. Indicated Air Speed _____ Est. Altitude _____

Counting Conditions: Ground Cover _____ Light _____ Air _____

Weather: Temp. _____ Wind _____ Cloud Cover _____ Analyst _____ QA Check _____

Observations M	F	JUV	U	Location Transect	Notes and Comments
			3	9	S of Little Duck
			2		Gulch N slope of Dead Horse
			8		S slope of Dead Horse
			3		S slope of Landing ~~Ridge~~ Strip Ridge
			2		at end of transect
			0	8	
			1	7	S of C-a by pipeline
			0	6	
			3	5	Between Ryan and Galloway
			2	4	RJ slope N of Ryan
			0	3	
			1	2	Wagon Road Ridge Sagebrush
			2		Not 9 last sighting
			4		S of yellow Creek on N-facing slope
			2	1	Flat area S of Yellow Creek

RBOSP PROGRESS REPORT

Total Animals Counted: (1-) trans 12-14

Animal Distribution: [illegible] west of trail scattered throughout

File No. 83 1 6 15

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Movement 1062

Proj/Study 83/04 Date Flown 14 Nov 1985 Species Mule Deer Survey Area RBOSP

Observers: RP CL King LR LF Paun Pilot/Aircraft L.F. Paun / Cessna 206

Start 0723 Finish 0908 Avg. Indicated Air Speed 85 Est. Altitude 150-200

Counting Conditions: Ground Cover poor / fair Light Excellent Air Excellent

Weather: Temp. 45/32 Wind 0/0 Cloud Cover 0/0 Analyst CLK QA Check ✓ 12-12-7

Observations M	F	JUV	U	Location transect		Notes and Comments
			3	13	Wof E Frk Spring Drop off	Snow on Bluffs
			2		1 ridge S of above	
			2		1 ridge S of above; 2 ridge S of	
			10		1/2 way through area	
			2		Big Duck Creek	
			5		Big Duck Creek	
			10		S of Corral Gulch	
			3		1.5 mi from end	
			2		2nd ridge before end	
			2		end of transect	
			1	12	Gulch between KU + Cross	Buck bedded in aspen
			1		N Frk Spruce Gulch	
			3		between Frks of Big Duck	
			4		S of Little Duck	
			3		almost at end of transect	
			2		Soap Gulch	
			3	11	at start	
			4		S of Little Duck	
			5		ridge between Frks of Big Duck	
			8		Dead Horse Ridge	
			3	10	S of Landing Strip	
			1		Landing Strip / Boneldon	
			3		Sagebrush Hill	
			4		W of Cottonwood Spring	
			8		Ridge N of Cottonwood Spring	
			2	9	W Slope of Dead Horse Ridge	
			✓			

RBOSP PROGRESS REPORT

Total Animals Counted:

Animal Distribution:

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Movement 2of2

Proj/Study Grant Date Flown 14 Dec East Species Mule Deer Survey Area KMCSP

Observers: R _____ L _____ Pilot/Aircraft _____

Start _____ Finish _____ Avg. Indicated Air Speed _____ Est. Altitude _____

Counting Conditions: Ground Cover _____ Light _____ Air _____

Weather: Temp. _____ Wind _____ Cloud Cover _____ Analyst _____ QA Check _____

Observations M	F	JUV	?	Location	Notes and Comments
		2		6 Agalta	
		1		6 below Corral Gulch	
		1		4 W of Ryan Gulch	
		1		2 Dickason Sd yellow Creek	
		3		1 N of Yaboo Creek	
		4		N of Ryan School	

[DRAFT PROGRESS REPORT]

Total Animals Counted: 14 recount 12-17-75

Animal Distribution: 1 group of 7 with small herds

File No. 82-6.1F

1 of 2

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Movement

Proj/Study 83/84 Date Flown 16 Nov 1983 Species Mule Deer Survey Area RBOSP

Observers: R E C L Kling L E L F Pauw Pilot/Aircraft L F Pauw / Cessna 206

Start 0651 Finish 0937 Avg. Indicated Air Speed 80-85 Est. Altitude 150-200

Counting Conditions: Ground Cover poor Light Excellent Air Excellent

Weather: Temp. 43/43 Wind 1/1 Cloud Cover 0/10 Analyst CLK QA Check

Observations M	F	JUV	U	Location	Notes and Comments
			2	13 Transect Very start	
			3	Very start of transect	
			1	After Seep Gulch	
			4	Seep Gulch spruce area	
			2	N. Fork of Big Duck	
			2	Big Duck Creek	
			1	Big Duck Creek	
			2	Small Gully So of Big Duck	
			2	Ridge top N of end	
			3	End of transect	
			2	12 Between the Forks of Duck Creek	
			3	N of Big Duck	
			2	N of E Fork Spring Creek	
			1	So Seep Gulch	
			3	11 S of E Fork Spring Creek	
			4	S of Little Duck	
			7	N of N Fork Big Duck	
			1	Spruce Gulch	
			4	end of transect	
			4	" " "	
			3	" " "	
			1	10 N of road on Indian Ridge	
			4	Dead Horse Ridge	
			3	ridge top after Big Duck	
			1	before Little Duck	
			3	just past " "	
			2	9 N of Big Duck	

RBOSP PROGRESS REPORT

Total Animals Counted:

Animal Distribution:

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Count 2 of 2

Proj/Study 6300 Date Flown 16 Oct 1975 Species Mule Deer Survey Area RBOSP

Observers: R _____ L _____ Pilot/Aircraft _____

Start _____ Finish _____ Avg. Indicated Air Speed _____ Est. Altitude _____

Counting Conditions: Ground Cover _____ Light _____ Air _____

Weather: Temp. _____ Wind _____ Cloud Cover _____ Analyst _____ QA Check _____

Observations M	F	JUV	U	Location Transect		Notes and Comments
			1	9	N slope of Dead Horse	
			1		S slope Airplane Ridge	
			1	E	end of transect	
			4	1	Nof corral Gulch	
			6	3	84 mea above mch	
			9		tip of Wolf Ridge	
			5	1	Bar O Mesa	
			4		Wagon Road Ridge	

RBOSP PROGRESS REPORT

Total Animals Counted: 40 Yearlings 11 15

Animal Distribution: Scattered Most west of Trail

File No. 82 6 13.

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM 1061 Migration Movement

Proj/Study 93/01 Date Flown 13 Nov 1975 Species Mule deer Survey Area RBCSP

Observers: R. Eckley L. L.F. Paine Pilot/Aircraft L.F. Paine Cessna 206

Start 0911 Finish 0957 Avg. Indicated Air Speed 85 mph Est. Altitude 150-200'

Counting Conditions: Ground Cover poor Light excellent Air Fair

Weather: Temp. 35°/2° Wind S/5 Cloud Cover 0/0 Analyst ELP QA Check

Observations M	F	JUV	U	Location	Notes and Comments
			4	transect 13 N Big Duck Creek	
			1	Between Forks of Big Duck	
			2	S of Big Duck	
			4	12 Between Forks of Big Duck	
			0	Seep Gulch	
			2	end of transect	
			0	11 S of E Fork Spring Creek	
			3	N of N Fork Big Duck	
			3	N of S Fork Big Duck	
			4	Bisplane Ridge	
			6	10 Dead Eagle Ridge	
			2	Seep Gulch	
			2	end of transect	
			1	9 Dead Horse Ridge	
			5	N Point of Sodium Spring Ridge	
			3	8 Between N Gulley + Duck Creek	
			2	at end of transect	
			6	7 Paine Gulch Lookout	
			3	S of Sand Springs	
			0	6	
			0	5	
			0	4	
			0	3	
			0	2	
			5	1 South Slope Uteon Road Ridge	
			43		

RBCSP PROGRESS REPORT

Total Animals Counted: 53 ✓ known 12-19-75

Animal Distribution:

File No. [illegible]

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Movement 1 of 3

Proj/Study 83/04 Date Flown 12/16/1985 Species Mule Deer Survey Area [illegible]

Observers: R.E. Eakley L.F. L.F. Pauw Pilot/Aircraft L.F. Pauw / Cessna 206

Start 0826 Finish 0913 on #2 Avg. Indicated Air Speed 85 mph Est. Altitude 150 200'

Counting Conditions: Ground Cover Excellent Light Excellent Air Excellent

Weather: Temp. 15°/— Wind 5'/— Cloud Cover 1/10 Analyst CLK QA Check

Observations M	F	JUV	U	Location	Notes and Comments
			5	transect N of E Frk Spring Creek	Fresh Snow
			3	12 N of E Frk Spring Creek	
			5	* E Frk Spring Creek	numerous tracks on south facing slopes
			10	E Frk Spring Creek	in this area
			1	E Frk Spring Creek	
			5	Duck Creek	
			4	Big Duck Creek	numerous Tracks South Slope
			3	Big Duck Creek	
			4	Water Gulch	
			2	before Spruce Gulch	
				12	tracks S facing slopes of Cross Gulch
			4	S slope of Airplane Ridge	
			4	S slope of Sagebrush Hill	
			2	S slope of Sagebrush Hill	
			7	S slope Nat S Frk of Duck Creek	
			6	Between the Frks of Duck Creek	many tracks in this area
			10	N of N. Frk of Big Duck Creek	
			4	S of Little Duck Creek	
			6	S of E Frk Spring Creek	
			7	N of E Frk Spring Creek	
			7	N of E Frk Spring Creek	
			1	at end of transect	
			5	at end of transect	
			3	11 bottom of E Frk Spring Creek	
			2	bottom of E Frk Spring Creek	
			10	S of E Frk Spring Creek	
			3	N of N Frk Big Duck Creek	

RBOSS PROGRESS REPORT

Total Animals Counted:

Animal Distribution:

File No. [illegible]

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Movement 1 of 2.

Proj/Study 83/04 Date Flown 22 Nov 1985 Species Mule deer Survey Area RBOSP

Observers: R & C L Kling L & L.F. Paur Pilot/Aircraft L.F Paur / Cessna 206

Start 0722 Finish 1416 Avg. Indicated Air Speed 95 mph Est. Altitude 150 to 200'

Counting Conditions: Ground Cover Fair Light Excellent Air Excellent

Weather: Temp. 20/33 Wind 0/0 Cloud Cover 0/0 Analyst CLK QA Check

Observations M	F	JUV	U	Location	Notes and Comments
			8	Transect 13 Nof Sage Gulch	
			6	13 Nof Sage Gulch	
			3	Sage Gulch	
			1	N Frk Big Duck Creek	
			3	Big Duck Creek	
			8	Sof Big Duck Creek	
			4	Nof Spruce Gulch	
			2	12 Spruce Gulch	
			3	S slope of Sagebrush Hill	
			2		
			3	on Sagebrush Hill	
			3		
			4	on Dead Horse Ridge	
			3	S slope of ridge between	Frks of Big Duck Creek
			5		
			3	S of Little Duck Creek	
			8	ridge on E Frk Spring Creek	
			7		
			8	N of E Frk Spring Creek	
			5		
			5	at end of transect	numerous tracks in area also
			2	11 S of E Frk Spring Creek	
			3		
			6	S of Little Duck Creek	
			12	N of N Frk Big Duck Creek	
			14		
			1	S slope of ridge between	Frks of Big Duck Creek

RBOSP PROGRESS REPORT

Total Animals Counted:

Animal Distribution:

File No. _____

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Movement 3063

Proj/Study 83/04 Date Flown 20 Nov 1975 Species Mule deer Survey Area RBOSP

Observers: R _____ L _____ Pilot/Aircraft _____

Start _____ Finish _____ Avg. Indicated Air Speed _____ Est. Altitude _____

Counting Conditions: Ground Cover _____ Light _____ Air _____

Weather: Temp. _____ Wind _____ Cloud Cover _____ Analyst _____ QA Check _____

Observations M	F	JUV	U	Location (transect)	Notes and Comments
				7	No tracks on 84 Mesa North of C-a
					Few tracks S of Boxelder
			2	N slope S of Boxelder	S slope above Pass Gulch has
					moderate number of tracks.
				6	Few tracks S of Stake Springs
					and Wolf Ridge.
			2	N of Corral Gulch ½ way toward top.	
				5	Few tracks near pipeline
			1	4 N of Reigle Ranch	P-J tracks sw on slope
					Moderate tracks Wagon Road Ridge
					No tracks N part of Wagon Road Ridge
					scattered tracks on S facing slope of
					Wolf Ridge (low on slope)
					No tracks on 84 mesa
			2	3 Wagon Road Ridge	South facing slopes have more tracks
					than N facing slopes.
			1	2 N of Ryan Gulch P-J	Tracks more numerous on Bar D
					Mesa near the Small breaks into
					Yellow Creek than on Flat sagebrush
					and at Yellow Creek — airplane
					engine missing a couple of beats and
					this is no place to land.

RBOSP PROGRESS REPORT

Total Animals Counted: (36) Rev 12-19-75

Animal Distribution: [illegible]

File No. [illegible]

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Movement 1 of 2.

Proj/Study 83/04 Date Flown 22 Nov 1985 Species Mule deer Survey Area RBOSP

Observers: R.f C.L.K Ling L.f L.F Penn Pilot/Aircraft L.F Penn / Cessna 206

Start 0732 Finish 1416 Avg. Indicated Air Speed 85 mph Est. Altitude 150' AGL

Counting Conditions: Ground Cover Fair Light Excellent Air Excellent

Weather: Temp. 20/33 Wind 0/0 Cloud Cover 0/0 Analyst CLK QA Check

Observations M	F	JUV	T	Location (Transect)	Notes and Comments
			8	13 N of Seep Gulch	
			6	13 N of Seep Gulch	
			3	Seep Gulch	
			1	N Frk Big Duck Creek	
			3	Big Duck Creek	
			3	S of Big Duck Creek	
			4	N of Spruce Gulch	
			2	12 Spruce Gulch	
			3	S slope of Sagebrush Hill	
			2		
			3	on Sagebrush Hill	
			3		
			4	on Dead Horse Ridge	
			3	S slope of ridge between Frks of Big Duck Creek	
			5		
			3	S of Little Duck Creek	
			8	ridge on E Frk Spring Creek	
			7		
			8	N of E Frk Spring Creek	
			5		
			5	at end of transect	numerous tracks in area elk
			2	11 S of E Frk Spring Creek	
			3		
			6	S of Little Duck Creek	
			12	N of N Frk Big Duck Creek	
			14		
			1	S slope of ridge between Frks of Big Duck Creek	

RBOSP PROGRESS REPORT

Total Animals Counted:

Animal Distribution:

LARGE MAMMAL AERIAL CENSUS REPORT AND DATA SUMMARY FORM Migration Movement

Proj/Study 6744 Date Flown 12 Dec 1975 Species Mule deer Survey Area Doc 2 RBOSP

Observers: R _____ L _____ Pilot/Aircraft _____

Start _____ Finish _____ Avg. Indicated Air Speed _____ Est. Altitude _____

Counting Conditions: Ground Cover _____ Light _____ Air _____

Weather: Temp. _____ Wind _____ Cloud Cover _____ Analyst _____ QA Check _____

Observations M	F	JUV	U	Transect	Location	Notes and Comments
			9	11	S slope of ridge between the forks of Big Duck Creek	
			2		Dead Horse Ridge	
			6		Sagebrush Hill	
			1		S Slope of Sagebrush Hill	
			5		Dead Pig Ridge	
			10		S slope of Dead Pig	
			4		N part of Airplane Ridge	
			6		N of pipeline	
			3	10	Stotts transect	
			7		S slope of Airplane Ridge	
			3		S slope of Dead Pig Ridge	
			4		S slope of Sawtooth Ridge	
			2		S of Little Duck Creek	
			3		N of Little Duck Creek	
			4	9	S slope of Airplane Ridge	
			4		N slope of Landing Strip Ridge	
			2	8	N of Hadley	
			4	7	Above Corral Gulch	No tracks on 84 area this year
			0	6		
			0	5		
			2	4	SW of Reigle Rock	F-1 type
			8	3	84 area	
			6			
			5		Soft Stake Springs	
			4	2	Wagon Road Ridge	
			1		N of Rhea	P-1 type
			2	1	84 area	

RBOSP PROGRESS REPORT

Total Animals Counted: (1 1 5) 12-19-75

Animal Distribution: [illegible] N of Big Duck Creek

83.C.6.3.2.2

LARGE MAMMAL TRACK COUNT FIELD DATA SHEET

Project/Study 83/cd Date 23 Oct 1975 Observer Kling Sheet 1 of 1

Route Description Road from Duck Creek to 84 ranch to Stake Springs QA Check [illegible] 1930/75

No. of Tracks In West	No. of Tracks Out East	Location	mileage reading	Notes
			↓	about 12-14" of new snow fell last night - still snowing
		Stake Springs to 84 ranch		
	II 2		94.5	
	II 2		95.5	
	II 2		95.9	
	I 1		96.5	
	IIII 4		96.7	
	I 1		97.4	
	##III 8		97.8	
			97.9	2 tracks direction could not be determined.
			99.9	at Stop Sign for main road
-		Stake Springs south to gate at Riegle		
	III 3	First Ridge top S of Stake Springs		
	II 2	First Gulley S of First Ridge		
		Stop sign at main road to Duck Creek		
			26.0	Corner to 84 main road
	X		26.3	Too many to count, path worn in snow
			27.9	Bench mark middle gate
			30.0	Turn off main road
	IIII 4		30.2	
			30.4	Turn off to Duck Creek
III 3	I 1		30.5	
				Too slippery walked the rest of Way
	II 2	near old corral on top		Texas hunters have camp West of old corral
		end at gate By Duck Creek.		
3	32+	Totals → Too many to count path worn in snow N of cattle guard on 84 main		

LARGE MAMMAL TRACK COUNT FIELD DATA SHEET

Project/Study [illegible] Date 13 Feb 1975 Observer E Kelley Sheet 1 of 1

Route Description [illegible] QA Check [illegible]

No. of Tracks In	No. of Tracks Out	Location	Notes
Tracks	[illegible]	figure 8 rabbit with dog	
		Totals	

BRISP PROGRESS REPORT

T21 & 22

LARGE MAMMAL TRACK COUNT FIELD DATA SHEET

Project/Study Spain Date 15 May 1975 Observer C. L. Kling Sheet 1 of 2

Route Description Road cuts; Trail Creek Farm Dirt Creek to Big Bend Ranch QA Check

No. of Tracks In	No. of Tracks Out	Location	Notes
Toward Dirt	Creek from Trail		
		Start Spring South	
		0.0.7 at metal post	
		4.1 State Road sign	
	III	3.5 ?	
		5.7 to end of draw	41 Cingulate tracks
	II	6.3	
		6.4 crossroad at ridge	
	II	6.9	
		6.3.6 end at cuts above Big Bend Ranch	
		Start Spring South	
		6.2.3 at metal post	
I		9.1	
		.5 to end of gulch	
	II	41.0	
II	II	11	
	I	17	
		18	
I		19	
	I	42.	
	III	21	
		22 cross gulch	
	II	23	
I		25	
I		27	
	I	28	
III	I	31	
I		.4	
	I	.6	
	IIII	.7	
		4.1 Stop Sign	
		7 Crossroads	cattle in this area
		Totals	

RBOSF PROGRESS REPORT

LARGE MAMMAL TRACK COUNT FIELD DATA SHEET

Project/Study [illegible] Date [illegible] Observer [illegible] Sheet 2 of 2

Route Description _____ QA Check _____

No. of Tracks In	No. of Tracks Out	Location	Notes
[illegible]	[illegible]	4.1 Corral to 84 [illegible]	
III		5.2	
		5.4 Gate	
	4	5	
	III	6	
		1' Lower Bench Mark	
		6.2	Coyote tracks
		6.9 Middle Bench Mark	Cattle in area
		49.0 Corral to Big Duck Creek	
		9.4 Cross fence	
		9.7 Corral above Duck Creek	
		48.5 Road or Gate	
15	49	Totals	

[illegible] RELEASED FOR PROGRESS REPORT

LARGE MAMMAL TRACK COUNT FIELD DATA SHEET

Project/Study [illegible] Date 17 Nov 1975 Observer C. Kling Sheet 1 of 1

Route Description [illegible] QA Check [illegible]

No. of Tracks In	No. of Tracks Out	Location	Notes
[illegible]	[illegible]	Snake Springs South	
		59.1 Start at metal post	
III		58.7	
	[illegible]	.9	
	[illegible]	0.8	
	[illegible]	.3	
	[illegible]	.2	
	[illegible]	0.4	
II		0.5	
	IIII	0.6	
		0.8 end at Rock Road jct.	
		Snake Springs North	
		70.3 0 Start at Metal Post	
		3.2 Curve to NE along Snake Springs	
	I	3.8	
	I	4.1	
	II	.2	
I	I	4.9	
	I	5.6	
	II	.7	
IIIII	II	7.8	
		8.1 at stripes	
	III	8.7 Curve to SE mesa	
III		9.1	
	II	9.2	
		9.4 Leave Road to Rock	
II		9.5	
	II	9.7	
		10.4	Coyote tracks
		0.6 Middle Road Mesa	
		3.7 Embarcadero	
61	7	Totals	

RBOSP PROGRESS REPORT

LARGE MAMMAL TRACK COUNT FIELD DATA SHEET

Project/Study [illegible] Date [illegible] Observer [illegible] Sheet 1 of 1

Route Description [illegible] QA Check [illegible]

No. of Tracks In	No. of Tracks Out	Location	Notes
[illegible]	[illegible]	Start at Right Gate Lead Track	
	[illegible]	[illegible]	
	[illegible]	1.6	
		1.9 intersection	
	[illegible]	3.0	
	[illegible]	3.0	
	[illegible]	3.1	
[illegible]		3.1	
		4.3 metal gate	
		[illegible] at metal gate round trip	
		5.7 Curve to Stock Springs	
	[illegible]	5.5	
		5.6 Stop Sign	
		5.0 [illegible] turn to 84 round trip	
		1.6 Gate	
		3.5	Horse tracks
	[illegible]	.6	
	[illegible]	.9	
[illegible]		4.6	
	[illegible]	4.2	
	[illegible]	.4	
		5.0 [illegible] end at Duck Creek	
[illegible]	[illegible]	Totals	

REDSP PROGRESS REPORT

LARGE MAMMAL TRACK COUNT FIELD DATA SHEET

Project/Study 83/01 Date 21 Nov 1985 Observer C. Ebling Sheet 1 of 2

Route Description east of First Cr. from Duck Creek to Eagle Ranch QA Check

No. of Tracks In	No. of Tracks Out	Location	Notes
		091.8 start at metal stake heading south	fresh snow last night
1		2.0	coyote tracks at start
	IIII (4)	2.1	
	II (2)	.3	
	III (3)	.4	
1 (2)		.6	
1 (2)		.8	
	II (2)	.8+	
	II (2)	.9	
	II (2)	3.0	2 coyotes
	I (1)	3.3	
	IIII (4)	.4	coyote tracks
	II (2)	.5	
	I (1)	.7	
	HHT (5)	.8	
III (3)		4.0	
	IIII (4)	4.0	
	HH (5)	4.1	
		4.1+	end at gate by Eagle Ranch
		096.4	start at metal stake heading south
		.6	curve to Alder Springs
	HHT II (7)	.9	coyote tracks
	I (1)	7.0	
III (3)	IIII (4)	7.3	
	III (3)	7.5	
		8.0	coyote
IIII (4)		8.2	
	I (1)	8.5	
	I (1)	9.2	
I (1)		9.8	
	II (2)	5.9	
	I (1)	14	
14	67	Totals	

PROGRESS REPORT

LARGE MAMMAL TRACK COUNT FIELD DATA SHEET

Project/Study [illegible] Date [illegible] Observer [illegible] Sheet [illegible] of [illegible]

Route Description _____ QA Check [illegible]

No. of Tracks In	No. of Tracks Out	Location	Notes
[illegible]	[illegible]	1.5 [illegible]	
	[illegible]	1.6 [illegible]	
	[illegible]	1.8	
		2.0 curve to SW	
		2.5 gate	
		4.0 Noble Bench Mark	
		5 u	horses [illegible]
			[illegible]
		5.9 Upper Bench Mark	

LARGE MAMMAL TRACK COUNT FIELD DATA SHEET

Project/Study 5304 Date 23 Nov 1975 Observer C.A. King Sheet 1 of 2

Route Description 0.1 east of start C-a from Duck Creek to Eagle Ranch QA Check

No. of Tracks In	No. of Tracks Out	Location	Notes
		358.2 at metal post south	coyote tracks
1 (2)	IIII (4)	.2	
	II (2)	.3	
II (2)		.4	
III (3)	III (3)	.1	
I (1)	IIII (4)	.5	
II (2)	III (3)	.7	
	I (1)	9.1	
	I (1)	.2	
I (1)		.4	
	I (1)	.5	3 runs
		3.8 intersection	
	II (2)	.9	
	III (3)	10.0	
II (2)		.1	
I (1)		.2	coyote tracks
	II (2)	.3	
		0.5 end at gate	
		292.8 start at metal post north	
	I (1)	.3.4	
II (2)		.5	
	II (2)	.8	
	II (2)	.4	
	III (3)	4.1	many tracks at this road gate
	II (2)	.5	
I (1)		.6	
	II (2)	.7	
	IIII (4)	6.8	
III (3)	II (2)	7.0	
		97.5 stop sign	
	III (3)	3.2 W of 89 ranch	
		8.4 turn to 84 mesa	
(a)	(b)	Totals	

REJSP PROGRESS REPORT

LARGE MAMMAL TRACK COUNT FIELD DATA SHEET

Project/Study [illegible] Date 23 Nov 1995 Observer [illegible] Sheet 2 of 2

Route Description _____ QA Check _____

No. of Tracks: In	No. of Tracks: Out	Location	Notes
[illegible]	[illegible]	95.2	
	IIII (4)	95.7	
		89 gate	
		91 Lower bench mark	
		92	coyote tracks-
		91.3 Nobles Bench Mark	
IIII (3)		93.7	
	I (2)	2.4	
		03.3 [illegible] end at gate by Duck Creek	
[illegible]	[illegible]	Totals	

REDUCE PROGRESS REPORT

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.4.2

Project: 83 Transect: 1 Plot Size: 100 FT²

Location: E1/2 S32 T1S R99W

Date Pellet Groups Initially Removed: 23 Oct. 1975 Survey No: 2 Fall 19?
rem 10/14/75

Plot No.	Inspector: CLKling Date: 21 Sept. 1975 Pellet Groups Observed	Landscape and Vegetation Information Not changed from previous survey except where noted.
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	
12	0	
13	0	
14	0	
15	0	
16	0	
17	0	
18	0	
19	0	
20	0	
21	0	
22	0	
23	0	
24	0	
25	0	
Total	0	

ECI

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.4.2

Project: K3 Transect: 2 Plot Size: 100 ft²

Location: W 1/2 S24 T15 R100W

Date Pellet Groups Initially Removed: 17 May 1975 Survey No: 1 (Fall 1975 from 9/14/75

Plot No.	Inspector: Clicking Date: 19 Sept 1975 Pellet Groups Observed	Landscape and Vegetation Information NOT changed from initial survey except where noted
1	0	
2	0	
3	1	just N. of gully #2
4	2	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	
12	0	
13	0	
14	0	
15	0	
16	0	
17	0	
18	8	
19	8	
20	1	
21	0	
22	0	
23	0	
24	0	
25	0	
Total	4	

(EC)

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.1.2

Project: 83 Transect: #3 Plot Size: 100 ft²

Location: W1/2 Sec 19 T1S R99W

Date Pellet Groups Initially Removed: 18 May 1975 Survey No: 1 (Fall 1975)
Rem 10/14/75

Plot No.	Inspector: CLKleng Date: 20 Sept. 1975 Pellet Groups Observed	Landscape and Vegetation Information (not changed from previous survey except where noted)
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	
12	0	
13	1	
14	0	
15	0	
16	0	
17	0	
18	0	
19	0	
20	0	
21	0	
22	1	
23	0	
24	0	
25	0	
Total	2	

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.4.2

Project: 83 Transect: #4 Plot Size: 100 Ft²

Location: W½ S20 T1S R99W

Date Pellet Groups Initially Removed: 18 May 1975 Survey No: 1 (Fall 1975)
nsm 10/14/75

Plot No.	Inspector: CLKling Date: 30 Sept 1975 Pellet Groups Observed	Landscape and Vegetation Information (not changed from previous survey except where noted)
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	
12	0	
13	0	
14	0	
15	0	
16	0	
17	0	
18	0	
19	1	
20	0	
21	0	
22	0	
23	0	
24	0	
25	0	
Total	1	

(EC1)

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.1.2

Project: 83 Transect: 5 Plot Size: 100 ft²

Location: Mid pt N+S 54 T2S R9W

Date Pellet Groups Initially Removed: 21 October 1974 Survey No: 2 (Fall rips from 10/14/75

Plot No.	Inspector: CLKleing Date: 22 Sept 1975 Pellet Groups Observed	Landscape and Vegetation Information (not changed from previous survey except where noted)
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	
12	0	
13	0	
14	0	
15	0	
16	0	
17	0	
18	0	
19	0	
20	0	
21	0	
22	0	
23	0	
24	0	
25	0	
Total	0	

corner rod at 4 posts W of Wooden Post brace

ECI

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.1.2

Project: 83 Transect: 6 Plot Size: 100 ft²

Location: ~~E 1/2~~ S3 T2S R99W mid pt. N-5

Date Pellet Groups Initially Removed: 24 October 1978 Survey No: 2 (Fall 1978)
RGM 10/14/75

Plot No.	Inspector: CLKling Date: 22 Sept 1975 Pellet Groups Observed	Landscape and Vegetation Information not changed from previous survey except where noted.
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	
12	0	
13	0	
14	0	
15	0	
16	0	
17	0	
18	0	
19	0	
20	0	
21	0	
22	0	
23	0	
24	0	
25	0	
Total	0	

ECI

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.41.2

Project: 83 Transect: 7 Plot Size: 100 ft²

Location: E½ S8 T2S R3W

Date Pellet Groups Initially Removed: 23 October 1974 Survey No: 2 (Fall 1975 rem 10/14/75

Plot No.	Inspector: Clking. Date: 22 Sept 1975 Pellet Groups Observed	Landscape and Vegetation Information (not changed from previous survey except where noted)
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	
12	0	
13	0	
14	0	
15	0	
16	0	
17	0	
18	0	
19	0	
20	0	
21	0	
22	0	
23	0	
24	0	
25	0	
Total	0	

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.1.2

Project: 83 Transect: 8 Plot Size: 100 ft²

Location: W1/2 S25 T15 R10W

Date Pellet Groups Initially Removed: 19 May 1975 Survey No: 1 (1977)
nom 10/15/77

Plot No.	Inspector: Culley Date: 19 Sept 1975 Pellet Groups Observed	Landscape and Vegetation Information
1	0	10% change from previous transect noted
2	0	
3	0	
4	1	
5	0	
6	0	
7	0	
8	0	correction: soyd w/gully
9	0	
10	0	
11	1	
12	0	
13	0	
14	0	
15	0	
16	0	
17	0	
18	0	
19	0	
20	0	
21	0	
22	0	
23	0	
24	1	
25	0	
Total	3	

leaf Fall just starting on northern end

(GCT)

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.-1.2

Project: 83 Transect: 9 Plot Size: 100 ft²

Location: E½ S28 T1S R99W

Date Pellet Groups Initially Removed: 16 May 1975 Survey No: 1 (Fall 75-)
Room 10/15/75

Plot No.	Inspector: CLK/SJG Date: 20 Sept 1975 Pellet Groups Observed	Landscape and Vegetation Information not changed from previous survey except where noted.
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	
12	0	
13	0	
14	0	
15	0	
16	1	
17	0	
18	0	
19	0	
20	0	
21	0	
22	0	
23	0	
24	0	
25	0	
Total	1	

ECI

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET

C.6.4.2

Project: S3 Transect: 10 Plot Size: 100 Ft²

Location: W½ S26 T15 R100 W

Date Pellet Groups Initially Removed: 05/17/75 Survey No: 1 (Fall '75)
RDm 10/5/175

Plot No.	Inspector: C Kling Date: 19 Sept 75 Pellet Groups Observed	Landscape and Vegetation Information not changed from previous survey except where noted.
1	1	
2	1	
3	0	
4	0	
5	1	
6	1	
7	0	
8	0	
9	0	
10	1	
11	0	
12	0	
13	1	
14	0	
15	0	
16	0	
17	0	
18	0	
19	0	
20	0 (mary rabbit)	
21	0	
22	0	
23	0	
24	0	
25	0	
Total	6	

ECI

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.4.2

Project: 43 Transect: 11 Plot Size: 100 ft²

Location: E 1/2 S1 T25 R100W

Date Pellet Groups Initially Removed: 17 May 1975 Survey No: 1 (Fall 75)

ROm 10/17/75

Plot No.	Inspector: Elking Date: 19 Sept, 1975 Pellet Groups Observed	Landscape and Vegetation Information (not changed from previous except when noted)
1	0	
2	0	
3	0	
4	2	
5	0	
6	1	
7	0	
8	0	
9	0	
10	0	
11	0	
12	1	
13	0	
14	0	
15	0	
16	0	
17	0	
18	0	
19	0	
20	0	
21	0	
22	0	
23	0	
24	1	
25	0	
Total	5	

ECI

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.6.4,2

Project: 83 Transect: 12 Plot Size: 100 Ft²

Location: E 1/2 S13 T2S R100W

Date Pellet Groups Initially Removed: 16 May 1975 Survey No: 1 (Fall R.S. Rem 10/15/75

Plot No.	Inspector: CCKling Date: 21 Sept 1975 Pellet Groups Observed	Landscape and Vegetation Information (not changed from previous survey except where noted.)
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	1	
8	0	Coyote scat
9	0	
10	0	
11	0	
12	0	
13	0	
14	0	
15	0	
16	1	
17	0	
18	0	
19	0	
20	0	
21	0	
22	0	
23	0	
24	0	
25	0	
Total	2	

RECOP IMAGE IS INCOMPLETE

ECI

SINGLE TRANSECT PELLET GROUP COUNT FIELD DATA SHEET C.G.A.2

Project: 83 Transect: 13 Plot Size: 100 Ft²

Location: E 1/2 S16 T2S R99W

Date Pellet Groups Initially Removed: 16 May 1975 Survey No: 1 Fall 1975 ROM 10/15/75

Inspector: Eckley

Date: 22 Sept 1975

not changed from previous survey except when noted

Plot No.	Pellet Groups Observed	Landscape and Vegetation Information
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	
12	0	
13	0	
14	0	
15	0	
16	0	
17	0	
18	0	
19	0	
20	0	
21	0	
22	0	
23	0	
24	0	
25	0	
Total	0	

RECEIVED BLM BOISE DISTRICT

ECI